Question Mark Computing

Question Mark Professional

Question Mark Professional

User manual
Version 3.0

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    On a network, the software will normally be stored on a server computer and loaded to run on another computer, representing two occasions of "in use" as defined above. This is permitted provided that you allocate a single physical computer on the network as the sole computer that may be used to load and run the software. You may change this allocation only on an occasional basis. The software may not be loaded or run on other non-allocated computers on the network. Should you need to run the software on more than one computer on a network, you must purchase an extended licence.

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1. Introduction

1.1 What is Question Mark?

Question Mark™ is a computer program, which you can use to create, give, mark and analyse objective tests on a computer. Using Question Mark, you enter questions (on any topic) into the computer; students answer your questions on-screen, and the computer can mark and analyse their answers.

Question Mark is suitable for use both by individual trainers and teachers, seeking to create tests for their students, and by courseware developers who want to create tests for distribution. Question Mark can also be used in any situation where you want to ask people questions and analyse their answers: questionnaires, opinion polls, recruitment tests, and many sorts of form-filling.

Question Mark is easy to learn, and you do not need to know about computers to use it. You should start using it productively after only a short learning period.

Using Question Mark, you can create tests with:

- up to 500 questions (either all or some chosen randomly);

- each question in one of 9 types - multiple choice (includes yes/no, true/false), numeric, fill in blanks, word answer, free format, matching/ranking, multiple response, logical and explanation;

- a variety of ways to present the test including giving the student feedback on answers after each question, after the test or not at all, and a range of options including time limits, hints for wrong answers, and letting students pass

over questions;

- control over the way the screen looks when the test is delivered, including the capability to include your own graphics in questions;

- flexible and intelligent computer marking methods, where you can define a variety of correct answers and scoring methods;

- the ability to call up other tests to follow on from this test, with the test chosen depending on the student score.

Students can answer the tests without needing to be familiar with the use of computers; and there are measures to prevent students from getting access to the questions and answers illegally.

After the questions have been answered, there are sophisticated but easy-to-use ways to review and analyse the answers. You can collate and analyse answers from different students and different tests, sending output reports to screen, printer or disk.

Under the terms of the standard purchase of Question Mark, you can use the main software for creating tests and analysing answers by one person at a time. You can use the Question Mark delivery software to run tests to an unlimited extent on one site. Additional licences are available to distribute the test delivery software to other sites, or to use the main software more widely.

1.2   Latest developments in this release

Question Mark Professional (Version 3) is the latest and most

sophisticated version of the Question Mark range of programs
for use under the DOS operating system on IBM PC computers
and compatibles.

Among the new features introduced in this release of the
software are the following:

- A new improved student interface that allows students to
  guide themselves through tests using the mouse and a
  "buttons" style user interface.

- Much improved graphics handling, including the ability
  to show more than one graphic per page and a high level
  of integration between the questions and the graphics.

- New concepts of allocating questions to topics and stu-
  dents to groups to improve the effectiveness of scoring
  and analysis.

- A new student validation facility that allows Question
  Mark to check that students are allowed to answer tests.

- A powerful question banking capability that allows you to
  set up a series of files as question banks and then to
  randomly choose questions from these banks to go into
  tests.

- A new question type, the logical question type, that
  allows you to ask students to enter yes/no or true/false
  against a series of statements on the same screen.

- A new Statistics report type, that works out some statis-
  tical information on answers to questions to help you pick
  out which of your questions are most useful.

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1.3   How to use this manual

Question Mark can be used in many different applications. In this manual we refer, for simplicity, to questions being set by teachers and answered by students.

You do not need to read the whole manual to use Question Mark. You must read Chapter 2 (which tells you how to install Question Mark on your computer).

Chapter 3 is a tutorial, introducing you to Question Mark. Chapter 4 describes basics of using the software and getting it to do what you want.

Chapters 5, 6 and 7 form the main part of the manual describing how you can use Question Mark to make tests. Chapter 5 covers the general issues, Chapter 6 covers how to set questions, and Chapter 7 describes how you can add graphics to tests.

Chapter 8 describes running tests using the Question Mark delivery software. Chapter 9 describes how answers are saved to disk after a test, and how you can collate and edit them. Chapter 10 goes on to describe how you can make reports on answers.

Chapter 11 discusses security issues raised by computerised testing, and Chapter 12 covers advanced topics in using Question Mark. The appendices include information on converting to and from other versions of Question Mark, and a trouble-shooting section with a list of all Question Mark error messages.

It is possible that the software may have been improved since this manual was written, or that there is extra information that you may need to see. There is a READ.ME file on the dis-

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tribution disks with any last minute information, and you
should make sure you look at this before using the software.
See Chapter 2 for how to look at the READ.ME file.

1.4   Two requests

We have written Question Mark for you. We hope you enjoy
using it and find it helps you to do what you want with your
computer. We have two requests.

First, please remember that copying software is illegal as well
as unethical. We warn you not to engage in software piracy.
(Every disk is numbered so that illegal copying can be traced.)

Second, if you have any suggestions as to how we could
improve Question Mark (or if you should find any bugs),
please let us know. This version of Question Mark contains
many improvements and changes suggested by users, and we
are keen to hear of any more suggestions as to what we should
do in the future.

Question Mark is an engine that allows you to create tests on
almost any topic under the sun. It is an open-ended piece of
software, and we cannot cover every possible eventuality in
this user manual. If you find a problem using Question Mark,
please look hard at this manual to see if it can help you. If it
can not, then please contact us, and we will endeavour to help.

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2.   Installing Question Mark

2.1   Preparing to run Question Mark

2.1.1   What you need to run Question Mark Professional

This Chapter tells you what kind of computer you need to run Question Mark and what you need to do before trying to use Question Mark.

This version of Question Mark runs on IBM PC computers and computers that are compatible with them. The minimum system required to use the full Question Mark Professional software consists of a PC with:

- a hard disk;

- at least 640K of memory;

- a version of MS-DOS 2.0 or later (or a suitable compatible operating system);

A printer is a useful accessory. You will also find a Microsoft compatible mouse useful (but not essential).

To include graphics in tests, you need a PC with a graphics display adaptor. You are recommended to use a VGA (or better) display, but the software also supports EGA, CGA and MCGA displays. (On PCs with a CGA display adaptor, you need to run the MS-DOS utility GRAFTABL before you run any of the Question Mark software that uses graphics.)

The Question Mark delivery software will run on an even wider range of PCs - including on PCs with just 384K of memory, and with a single floppy disk drive.

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2.1.2   What Question Mark Professional consists of

Question Mark Professional is distributed on floppy disks (how many disks are used varies with the type of disk).

On the first distribution disk is a READ.ME file that contains last minute information on this release. You should read this file before installing the software. With the file is a program file README.EXE, and you can read the READ.ME file, by putting the disk in drive A:, making drive A: current, and typing "README" and pressing Enter.

The other files on the distribution disks are as follows:

- QM.EXE, the main part of the Question Mark software;

- a series of.OVL files (QM0.OVL, QM1.OVL etc.) which are subsidiary program files used by QM.EXE;

- QMARK.HLP, the on-line help file for Question Mark;

- S.EXE, the Question Mark delivery (or student) software;

- COLLATE.EXE, a utility program for collating answer files;

- QMRES.EXE, a utility program for snapshotting graphics off the screen;

- MONO.CFG, a setup file required on certain machines - see 2.3 below;

- QM.ICO and S.ICO, two Windows icon files that you can use if you run Question Mark from Windows;

- various example files, usable as illustration of some of

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what you can do with Question Mark and as possible
standard background graphics to use in your tests (these
files have extension .QUE, .PCX, .HLP and .DOC);

● QMSETUP.COM, an automatic installation program
described below.

Additionally, if you are receiving this software in a non-Eng-
lish speaking country, there may be an extra disk with a ver-
sion of the delivery software in your local language. This soft-
ware is called Sxxx.EXE where xxx is the first three letters of
the language (so SSVE.EXE would be the Swedish version of
the delivery software).

In some countries, Question Mark is supplied with a copy
protection device, called a "dongle". You need to plug in this
dongle into the parallel port on your computer to use the Ques-
tion Mark main software.

**In the product packaging, you will find a product registra-
tion postcard. You should fill in the postcard and send it
back to us as soon as you start using the package. We will
then be able to keep you informed of developments to the
software, and regularly send you the Question Mark user
newsletter.**

2.2   Standard installation

2.2.1   Automatic installation

Question Mark installation simply consists of copying the files
on the distribution disks onto your hard disk. You need
between one and two Megabytes of free space on disk to install

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the software. You can either use the QMSETUP program to copy the files automatically, or you can copy them yourself.

Put the first distribution disk in floppy drive A: or B:. Make that floppy drive current (by typing "A:" or "B:" and pressing Enter). Type "QMSETUP" and press Enter.

Follow the instructions on the screen, answering the questions the program asks, and inserting the other floppy disks when requested.

By default QMSETUP will install the Question Mark software on a directory \QMARK3, which it will make if one is not already there. It will overwrite any previous version of Question Mark if present. Example files will be copied to the sub-directory \QMARK3\EXAMPLES.

If upgrading from a previous version of Question Mark, you should delete the previous version program files after successfully installing and using the software. Refer to Appendix B for details of how to convert files from previous versions.

2.2.2   Manual installation

If you prefer to install Question Mark manually, you should do the following after turning on your computer. These instructions assume that your hard disk is drive C and your floppy disk drive A; substitute other letters if you need to.

1.   Unless the prompt on the screen already starts with "C:", type "C:" and press Enter to make drive C your current drive.

2.   Type "MD \QMARK3" and press Enter.

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3.   Type "CD \QMARK3" and press Enter.

4.   Put the first distribution disk in floppy drive A and type "COPY A:*.*" and press Enter.

5.   Put the second distribution disk in the floppy drive and repeat step 4. If there are more than two disks, continue until you have copied all the disks.

If you are upgrading your version of Question Mark, refer to Appendix B for a description of how to convert previous version files.

2.2.3   Running Question Mark

You can now go ahead and use Question Mark.

●   To run the main software, type "QM" and press Enter.

●   To run the delivery software, type "S" and press Enter. After you have created tests, in order to distribute them to your students, you may wish to make student disks or run the software over a network. See Chapter 8 for how to do this.

●   To return to the Question Mark directory at any time (eg next time you turn the computer on), you just type "CD \QMARK3" and press Enter.

If you wish to minimise disk space, you should delete the example files from your hard disk.

If you find that the banner screen is too slow to be displayed when you load the software, you can delete the file QMARK.OVL from your hard disk. This will omit the graphical part of this screen, and speed up loading the software.

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Keep the original Question Mark floppy disks in a safe place,
so that you can copy them to your hard disk again if your disk
develops a fault, or you need a file you have deleted.

2.3   Advanced installation

2.3.1   Other ways of installing software

The file names S.EXE and QM.EXE were chosen to make use
of the system easy. You can rename these files if use of these
names would clash with something else on your system. You
can also install Question Mark differently to suit your own
particular needs using the information below. See Chapter 8 for
different ways of installing the delivery software.

The main software (QM.EXE) needs access to the help file
(QMARK.HLP) and the subsidiary overlay files (QM0.OVL,
QM1.OVL etc.) while running. If you use the standard instal-
lation, it will find these files automatically, but if you install it
differently you may need to tell the software where to look.

To access the overlay and help files, the software looks in the
following places, in this order:

1.   In the directory/drive that was current when the main
      software was loaded.

2.   In any path defined in the DOS environment string
      "QM". For example, to define C:\TESTS as where the
      files are, put in your AUTOEXEC.BAT file the line
      "SET QM=C:\TESTS" (don't put a space to the left or
      right of the '=' sign).

3.   In the directory \QMARK3 of the current drive.

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The computer tries to find the help file the first time you press
F1 and the overlay files when the program starts. It tries each
of the above places, until it finds the files (if it can). Once
found for the first time, it continues to try to read files from
there until the program is left.

Typically if you install the software in a non-standard way,
then you will want to set the environment variable QM as
described above. Either set it in your AUTOEXEC.BAT file,
or in a batch file that runs every time you load Question Mark.

2.3.2   Best use of memory

Question Mark is a standard DOS program, and can only use
the available memory space within the first 640K of memory.

When authoring large tests, or tests with colour graphics, you
should try and use a PC with as much free memory for DOS
programs as possible. On a modern PC, with DOS 5 or 6, it
ought to be possible to get 600K or more available free mem-
ory. You do not need this much, but the more you can get, the
better.

You can check the amount of free memory using the DOS
commands MEM or CHKDSK.

Among the ways you can increase your memory are to remove
any memory-resident programs, to upgrade your version of
DOS, and to vary the commands in your CONFIG.SYS file.

2.3.3   Use of setup file

Every time the Question Mark main and delivery software run,
they try to find the Question Mark setup or configuration file,
called QMARK.CFG. This file defines the screen colours, the

printer definitions and some other configuration details.

This file is searched for in the same way as the help and other files above. Setup files are fully described in section 12.2, and you should not normally use them until you have become familiar with the software.

However, on a small number of PCs, mostly portables with a monochrome display and graphics card, you may find that the default screen colours make part of the Question Mark display invisible. If you find this, then you will need to rename the file MONO.CFG on the distribution disk as QMARK.CFG and use this as your setup file in order for the program to work. (MONO.CFG is a setup file set up so that the screen will be visible in black and white in all possible circumstances.)

2.3.4   Keyboard reassignment

Question Mark accesses the keyboard using DOS. This means that it should run in tandem with many memory resident programs, including those that enhance the keyboard functionality in some way.

Additionally Question Mark works if you re-assign some keys on your keyboard to others (using the DOS ANSI.SYS driver or otherwise). This is particularly useful if you are using the software for foreign language teaching, where you can re-define rarely used keys to being foreign ones (eg letters with accents), so that you and your students can easily enter them. See your DOS manual for how to use ANSI.SYS to re-assign keys.

See also section 5.7 for another way of assigning keys.

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2.3.5   Use of Question Mark under Microsoft Windows

Question Mark runs well as a DOS program under Microsoft
Windows versions 3.0 and 3.1. You can run it under Windows
in the same way as any other DOS program. To set up the
Question Mark main software to run under Windows, follow
these steps from the Windows Program Manager.

1. Choose the group you wish to add Question Mark to.
    With this group active, select New from the Program
    Manager File menu. A New Program Object dialog will
    appear; with New Program Item selected (this is the
    default); click on OK to proceed.

2. A Program Item Properties dialog will appear in which
    you must supply a description for the program and the
    path and name for the program. Enter "Question Mark
    Professional" as the description, "QM" as the command
    line, and the path that the QM.EXE file is on as the
    working directory.

3. Specify the icon attached to the program by pressing the
    Change Icon button, and typing in the path and file name
    for the icon file QM.ICO, eg C:\QMARK3\QM.ICO.

4. Click on OK in the Properties dialog and the Question
    Mark icon will appear in the program group and can be
    run by double clicking on it, just like a Windows
    program.

On a very few Windows computers, this procedure will not be
sufficient, and you will need to make a .PIF file which
specifies how the program is to be handled. Refer to the
Windows manual for making a .PIF file.

You can set up the delivery software in the same way,
replacing QM by S for the program name and icon name. You

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can pass the name of a test and other parameters to the delivery software as described in Chapter 8 on the Windows command line if you want. You can even arrange that a number of tests can be offered, each with their own Windows icon.

2.4   How to proceed

Please, please remember (this is the most important single thing to remember about computer use) to make back-up copies of all the files you care about. Make these frequently and regularly - see section 4.4.4 for one way of backing-up files.

If you are patient

Start by reading the tutorial in Chapter 3. It shows you what tests created with Question Mark look like and guides you through creating a simple test.

Then read Chapter 4 and however much of Chapters 5 and 6 you can absorb initially. Then try using Question Mark. At some point skim through Chapters 8, 9 and 10 to see what is possible there. You do not need to read the rest of the manual until you are more familiar with Question Mark.

If you don't like manuals

The best way to learn Question Mark may be just to use it. Try running the QM software and try out some of the example tests using the F5 key. Then try experimenting further with the software; just press F1 for help whenever you get lost. Context sensitive help pages are available throughout the software.

Good luck!

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3.   Tutorial

3.1   Running the example tests

Following the instructions in this tutorial will not take you more than a few minutes and will give you a good introduction to Question Mark. First you will do a simple test, to see how things look from the student point of view; then you will discover how to create a very simple question file from scratch.

You must have read and followed the instructions in Chapter 2 to do this tutorial, and the tutorial only makes sense if you have a computer running Question Mark in front of you.

Load the software

Normally you load the software by making the directory \QMARK3 current, and typing "QM" and Enter. Refer to Chapter 2 if you cannot do this.

When the software is loaded, you will see a banner screen. Press any key to move on.

Moving to the example files directory

You should now see the Question Mark Directory screen, the main screen you control Question Mark from.

If you use the automatic installation program, the example files will be in directory "examples". Use the mouse or arrow keys to select "examples" on the screen, and press Enter. If you have copied the files onto your hard disk manually, then the example files may be on this directory.

These files are some demonstration tests we have provided to show you what Question Mark can do. They should include "Food" and "Info" and some other question files.

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Running the
example   Select one of the example question files with the arrow keys or
tests   mouse. The Food example is a good one to try as it has one of
each of the Question Mark question types in it.

Then press F5, which is the key used to try out questions or
tests in Question Mark. This will try out the test as if you were
a student.

The bottom three lines of the screen are used throughout
Question Mark to tell you what you can do. Always look there
first if you are uncertain what is happening. Answer the
questions however you like (it may be worthwhile to get some
wrong, to see what that looks like). At the end you are told
your score.

Try out a few of the example tests. (If you do not have a
graphics display, you may get a message refusing to run the
graphical examples.)

3.2   Creating a test

Now let's create a simple test. Pressing F1 at any time will
give you on-screen assistance. Pressing ESC will get you out
of almost anything, if things go wrong. The instructions below
describe using the keyboard, but you can also try using a
mouse if you have one.

Start
creating a   Press F4 to create a new question file. This is the key used in
test   Question Mark to create a question or test.

Choosing
test type   You see a page of information and at the foot of it a question

as to when the results of marking are shown to the student. This is an important decision, as it decides the test type. You can choose other test types later, but for the moment, press Enter (which selects the default test type).

Setting Control and Intro pages

You then see a page full of boxes, asking you questions (for example whether you want a time limit). Leave these as they are for now and press F10. This is the key you use in Question Mark to say "accept this" or "save". You then see another page of boxes, asking you for an introduction message for the test; again, leave this as it is, and press F10.

Creating first question

Next is a page saying "There are no questions". Press F4 to create a question. After this there is a menu showing the nine question types you can use in Question Mark.

This kind of menu is used widely in the software; you choose from a menu by pressing Space (the space bar) to highlight the option you want and then pressing Enter to select it. The *Choice* option is highlighted now, so press Enter to create a multiple choice question. You now must choose what kind of multiple choice question; choose the *Yes/No* option by pressing the Space (or the right arrow key) until *Yes/No* is highlighted and then press Enter.

A question consists of some question wording and some information defining possible student answers, which ones are right, and what score they get. Multiple choice questions have this information spread over two screens, which you move between with the PgUp and PgDn keys.

You need to define the question wording. Choose anything you like that has a yes or no answer (for example you could choose "Is this computer an IBM PC?"). Just type it in. You will see what you have typed appear in the top (question wording) box.

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Then use the PgDn key to view the screen for the choices, and use the arrow keys to move the cursor to the box (marked "Correct") to the right of "Yes" or 'No". Once there, type "Y" aligned with yes or no (depending which of yes or no is right for your question); this tells the computer which answer is right.

Trying out the question

Now press F5, which lets you see how the student would see your question. (If the computer tells you "Unable to proceed" then you have failed to follow the instructions; press ESC and make the change the computer is asking for.) If you do not like what appears when the question is tried out, change it (move the cursor into the appropriate box using the arrow keys, and type what you want).

Finishing first question

After you have tried out the question to your satisfaction, press F10. This finishes creating the question.

Creating second question

Now create a second question, this time a word answer one (where the student's answer has to be a single word). Press F4, select **Word** from the menu (by pressing space twice and then Enter), and then on how the question is to be marked, select **Marked** (press Enter).

You must now type in the question wording in the top box, and a correct answer in one of the boxes below (which you can get to with the arrow keys or with the Tab key). For example your question could be "What month does Christmas fall in?" and the correct answer "December". Leave the other boxes alone at present.

Try out this question with F5 and then press F10.

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Saving the test

You now have two questions, and can save this very simple test. Press F10 again; you will be asked for a file name. Type "Test1" (or another name if you prefer) and Enter. The question file is now saved to disk, and you see the Directory screen again.

Trying it out

From the directory screen press F5. This tries out the whole test.

You can leave the main software by pressing F10. If you changed to the "examples" directory, you may want to change back first by selecting ".." on the directories part of the screen, and pressing Enter.

You can also use the test delivery software to try out tests. This works just like using F5, except that you run it outside the main software, and select the file in a different way.

The test you have made is very small and simple; for real use, you would want to go back and add more questions, an introduction, and perhaps other things. But as you can see, creating tests is not difficult with Question Mark; and it gets easier the more you do it!

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4.   Using the Question Mark main software

4.1   Using the software

4.1.1   Getting help

Throughout the Question Mark main software, keys have the same meaning and screen layouts are similar. There is always something at the bottom of every screen telling you what you can do and there is normally some useful help available at the touch of a single key.

You can get help by pressing F1 in almost all places in Question Mark.

Help normally consists of a single page of advice. When you have read the help message, you press ESC to clear it and restore the original screen. Sometimes you will be offered an extra page of help after the first page; in that case you are invited to press F1 a second time.

If help does not appear when you press F1, you may get a message such as *Help file not found on disk*. Help messages are stored in a file on disk and this file must be present when you press F1. There is some advice on what to do if you get this message in the trouble-shooting Appendix.

4.1.2   Using the keyboard

The other main keys in Question Mark are:

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Enter

You use the Enter key to say "do this" or after typing in some information.

ESC

You use the ESC (or escape) key to leave or cancel something.

F10

You use the F10 key to finish doing a major task.

Normally when you are typing something, you see a marker (called a cursor) on the screen showing your current position. To delete characters, you can use the Backspace key (which deletes the last character) or the Del (delete) key which deletes the current character.

Other useful keys are the arrow keys (Up, Down, Left, Right) and the associated PgDn, PgUp, Home and End keys. These are used extensively in Question Mark allowing you to change which part of the screen you are looking at, or where the cursor is.

Holding the Ctrl key down while pressing these keys, ie Ctrl plus an arrow key or Ctrl Home etc., usually has a similar effect as pressing the basic key, but takes you further in the direction you have specified. (For example, pressing End positions the cursor at the end of a line of text in many screens, whereas pressing Ctrl End moves the cursor to the bottom right of the screen.)

You can use a mouse to control Question Mark as well as the keyboard. See section 4.1.7 on mouse use below.

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4.1.3   Screen layout

Throughout Question Mark the screen is divided into three areas:

*Command
area*

The bottom three lines of the screen are the command area. The options available to you and/or instructions about what to do next are always displayed here.

Status line

Immediately above the command area is a single status line, normally in reverse video. This is used to tell you what part of Question Mark you are currently in, to remind you what is happening.

Main area

The rest of the screen is the main display area.

When using Question Mark, always look at the bottom of the screen to find out what to do.

Depending on the speed of your computer, some things that you tell Question Mark to do can take a few seconds. Normally, a short message (eg *Loading question file*) appears highlighted at the top right of the command area when things that might take more than a moment are happening.

4.1.4   Error messages

When you try to do something that the computer cannot do (eg try to read a floppy disk when there is not one in the drive), you get an informative message in the command area (eg *Disk problem: floppy disk drive not ready*).

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The trouble-shooting Appendix contains an alphabetical list of such messages, together with some advice about what to do about each one. With most messages you can get on-screen help by pressing F1. After displaying an error message, the computer waits for you to press ESC before continuing. This is to make sure that you have noticed the message.

4.1.5   Function keys

As you already know, you use F1 to get help. The keys marked F1 through F10 are called function keys and are used to call up tasks or functions. (If your keyboard has more than 10 function keys, the extra ones are not used by Question Mark.) Throughout Question Mark these function keys have the same general meaning as follows:

F1 - Help

Get a help message.

F2 - Commands

See a menu of other commands or tasks to do.

F3 - Go to

Go to or move to something (eg another file).

F4 - Create

Create a new question or question file.

F5 - Try out

Look at something (eg a question) from a student's point of view.

F6 - Copy/Del

Copy, move, delete or rename.

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F7 - Report

Report on (get information from) a file.

F8 - Collect

Get something (eg a graphic) automatically.

F9 - Quit

Abandon what you are doing (like ESC key).

F10 - Done

Finish what you are doing and save any data.

Not all of these function keys are always available. You can
see which ones are available by a display in the command area.

4.1.6   Menus

Throughout Question Mark, you make a choice from a list of
possible options by means of a menu.

In all menus there are a number of options presented at the
bottom of the screen, each menu option starting with a different
letter. One option is highlighted (normally the first one or the
one you chose last time you selected from the menu). To
choose an option you can press Enter to choose the current
option or else press the first letter of the option you want. You
can change the currently highlighted option: Space (the space
bar) or Right arrow moves one place right, Backspace or
Left arrow moves one place left and the Home and End keys
move to the start or end of the menu.

Underneath the list of options is a short description of the
currently highlighted one. You can cycle through the options
(perhaps by using Space) to see what all the options do. For

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most menus you can also get help on the menu by pressing F1.

If you do not want to select any of the options you should press ESC. This will normally return you to what you were doing previously.

A special version of a menu is used to ask you to confirm doing some things that are irreversible (eg deleting a file). In such a menu, there are two options: **Yes** and **No**. To confirm the action, you need to select **Yes** (by typing 'Y' or high-lighting **Yes** and pressing Enter).

4.1.7   Using the mouse

Question Mark can also be controlled using a mouse. It will work with any Microsoft mouse, or with any mouse that is compatible with it. (This includes most mice in common use.)

When you use the mouse, a mouse cursor appears on the screen. This is a solid block cursor (unlike the usual text cursor which is flashing). You can move this cursor round the screen by moving the mouse in the usual way. If you do nothing, the mouse cursor sits in the status line, where it is invisible. You can always "park" the mouse in the status line, when you wish the mouse cursor to vanish from the screen.

The mouse only effects Question Mark when you press a mouse button. Pressing the left mouse button means that you want to action whatever the mouse pointer is pointing at. The process of moving the mouse cursor to a place on the screen, and pushing the left button is henceforth called "clicking". Pressing the right button has identical effect to pressing the ESC key - whenever you are asked to press the ESC key, you can press the right mouse button instead.

Clicking has different effects depending where you do it. For

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example, clicking on a function key (eg on **F1** - **Help**) is the same as pressing that key. Clicking on a menu option highlights that option, and clicking again actions that option.

The mouse is usable as described above throughout the Question Mark main software, except when editing a graphic picture for a question, when you can use the mouse slightly differently (see Chapter 7). Students can also use the mouse within the delivery software, as described in section 8.3. Generally, you can use the mouse to click on most things on the Question Mark screen to highlight or action them.

4.2   Question Mark disk files

4.2.1   Question files

When you create a test, Question Mark stores it on disk in a question file. This is a group of questions (from 1 to 500) together with some information about how they should be presented to students (eg whether there is a time limit).

A question file will typically take up a space on disk of around 5 kilobytes (K) plus a kilobyte per question, but this can vary very much depending on the types and lengths of the questions. (A kilobyte is about 1,000 characters worth: low density 3½" floppy disks can take 720K of files.)

Using the main part of Question Mark you can create question files from scratch, edit them, or produce reports (printouts) from them. You use the delivery part of Question Mark to deliver the questions files to students.

Question Mark stores question files with the DOS extension .QUE. Thus a question file you create with the name TEST

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will be stored on disk as the DOS file TEST.QUE.

4.2.2   Answer files

When you create a question file, you can choose whether or not the student answers are to be recorded on disk. Answers are stored in answer files. Each answer file can contain sets of answers from up to 999 students.

The smallest answer file takes about 5K of disk space, and the amount of space used by large answer files depends completely on the number and size of the answers. An answer file could theoretically get very large (several thousand K - much too big to fit on a floppy), but most answer files will be of manageable size.

Answer files are normally created by the delivery part of Question Mark. Using the main software you can collate answer files together and report on them.

Question Mark stores answer files using the DOS extension .ANS.

4.2.3   Other Question Mark files

Question and answer files are the main data files you will use within Question Mark, but there are some other files that you will come across if you use the more advanced features of the software, as follows;

● Graphics picture files can be used in tests; these files can have extension .PCX, .PCT or .QMG. Graphics files are explained in detail in Chapter 7.

● You can create student help files to accompany question

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files. These files have the .HLP extension. Student help files are described in section 12.6.

• Using the optional Multimedia Editor, you can create Multimedia files associated with question files, that let you call other programs from Question Mark tests. These files have the extension .QMM, and are described fully in the separate Multimedia Editor user manual.

• Using the optional Report Generator, you can create report templates that define reports to be made. These files have the extension .QMR, and are described fully in the separate Report Generator user manual.

If you use the advanced features of Question Mark, you may also create various system files, including the setup file QMARK.CFG, the macros file QMARK.MAC and the student validation file QMARK.VAL.

4.2.4   File names and directories

You can manipulate question and answer files (and some other files) using Question Mark, and without access to DOS. Within Question Mark, files are referenced by a file name which can be from 1 to 8 characters (normally letters or digits - with no intervening spaces). You choose the names for your own files, but Question Mark manages the file extension, and you do not need to type it.

When displaying file names, Question Mark shows the first character (if a letter) in upper case and other letters in lower case. This is just for display purposes - letter case is not significant for file names.

At any one time in DOS there is a current disk drive, and it has a current directory. (For example the drive might be "A:"

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and the directory the root one "\", or the drive might be "C:" and the directory "\QMARK3". In Question Mark you normally can access files only on the current drive and directory, and so you need not (and may not) specify a drive or directory name. You can easily change the current drive and directory from within the software.

4.3   Starting the Question Mark software

4.3.1   Starting the software

You start the main software by typing "QM" and pressing Enter from DOS. You first see an introductory screen showing the version of the software and the serial number of your copy of Question Mark. When you press a key, you move to the main Directory screen which allows you to select files to work on and to choose what to do with them.

To leave Question Mark you press F10 from the Directory screen.

4.3.2   The Directory screen

When you start running Question Mark, and in between doing tasks, you see a Directory screen which shows you which question and answer files are available. From this screen you can direct and control all the tasks that you do with Question Mark.

Figure 4.1 shows an example screen. The status line displays the name of the current DOS directory you are on, C:\QMARK3 in the example. In the command area is a one line message and a list of available function keys.

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```
   Question files        Answer files         Directories

A        Demo2        A         Caatest        ..        aipha
Driving  Egatest      Geog      Geog0001       doc       other
Geog     Geog0001     Geog0002  Geog0006       release   release2
Geog0002 Geog0003     Import    J1             tests
Geog0004 Import       John      National
J1       John         Scortest  State
National Never        T         Time
New      Quotes
Scortest Show
State    T
Temp     Time


Current directory    C:\QMARK3

Use the arrow keys to select a file, and press Enter to edit it.
F1  - Help     F3  - Go to     F5  - Try out  F7  - Report
F2  - Commands F4  - Create    F6  - Copy/Del            F10 - Done
```

Figure 4.1 The Directory screen

The main part of the screen is divided into three, showing all
question and answer files in the current directory, and any sub-
directories available from this directory. Files are shown in
alphabetical order.

In the example, there are several question files (A, Demo2
etc.), several answer files (A, Caatest etc.) and some sub-
directories (alpha, doc etc.). The .. directory in the example
represents the parent directory, ie C:\ in the example.

One file or directory is the current file, and is highlighted on
the screen (normally in reverse video). That file is the current
file and all tasks you select will act (as applicable) on that file.
To change the current file or directory, you use the arrow keys
or mouse to highlight the one you want.

Selecting a question or answer file lets you edit, report or
otherwise do something with that file. Selecting a directory lets
you change the current directory to that one (see below).

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If there are more files or directories than will fit on the screen, then you can see additional files by scrolling the screen up and down with the arrow keys (or with the Home, End, PgUp and PgDn keys).

The Directory screen can show up to 200 question and 200 answer files, but having anything approaching this on one directory is likely to become unwieldy. If you have so many question and answer files that it becomes inconvenient to deal with them all on one screen, you should create sub-directories to put different categories of files in. Use the DOS MD command to make sub-directories.

4.3.3   Actions from directory screen

After selecting a file using the arrow keys or clicking on it with the mouse, you can press any of the following keys to perform a task. (Clicking the mouse on a selected file is the same as pressing Enter.)

Enter

Edit (look at or change) the file - see Chapter 5 for question files and Chapter 9 for answer files.

ESC

Reset the display (eg after changing floppy disks).

F2

Run various Question Mark advanced facilities. The options available vary with which kind of file is selected, and what additional software is installed. The standard options are:

● **Utility** which offers various facilities for control of the software, described in Chapter 12;

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- **Graphics**, which allows you to view graphics files, as described in Chapter 7.

- **Password**, which allows you to assign passwords to protect access to files, as described in Chapter 11.

- **QPublish**, which allows you to release or publish a test, as described in section 8.1.3.

- **Bank**, which lets you do question banking, an advanced way of creating question files, described in section 12.8.

F3

Go to another directory or drive - see section 4.3.4 below.

F4

Create a new question file from scratch - see Chapter 5.

F5

(question file only). Try out the file. Run it in a similar way to that using the delivery software - see Chapter 8.

F6

Copy, delete or rename the file - see section 4.4 below.

F7

Report (analyse or print from) the file - see Chapter 10.

F10

Leave Question Mark.

4.3.4   Changing directory or drive

The easiest way to change the current directory is to click on

(or select and press Enter) a directory name on the screen. Clicking on .. takes you back up the directory tree towards the root directory; and clicking on a directory name takes you down to that sub-directory. In this way you can easily move around a disk drive looking for question and answer files.

To change the current disk drive, or to change directory without having to interactively select it, you use the F3 key. This prompts you for the name of a drive and/or directory name.

If you just want to change the current drive you type in the drive name, for example "C:". If you want to stay in the same drive, but change directory, you type in the directory name, for example "\QMARK3". If you want to change both the current drive and directory, you type in both (exactly like a DOS path name), for example "C:\QMARK3".

If you are using floppy disks and you want to change the disk and get Question Mark to display the Directory screen for the new disk, you should press ESC after swapping the disks (no need to use F3). This resets the display of files.

4.4   Copying, renaming and deleting files

After pressing F6, you get the same menu of actions for both question and answer files. You can *Copy* (copy within this directory), *Rename*, *Delete* and *Transfer* (copy to another drive or directory) files. If you don't want to do any of these, press ESC; otherwise select one according to the procedure for menus in section 4.1.6 above. All these tasks work on the currently selected file.

4.4.1   Copying files in this directory

The *Copy* option allows you to copy the file to a file of a different name in the same directory. You must enter a new file name (up to 8 characters, do not use the file extension). A duplicate copy of the file with the new name will be made and will appear on the directory screen.

4.4.2   Renaming files

The *Rename* option allows you to change the name of the current file. You must enter a new file name (up to 8 characters, do not enter the file extension). The file name will then be changed.

4.4.3   Deleting files

The *Delete* option permanently erases the current file from the disk. The data in the file will be lost. When selecting this option, you are asked to confirm the deletion. If you wish to delete it, press 'Y'; if you do not or are unsure, press 'N' or ESC.

(If you ever delete a file by mistake, you may be able to recover it using the DOS Undelete utility introduced in Version 5 of DOS. This is most likely to work if you do not do any writing to the disk (saving, copying etc.) between deleting the file and running the DOS utility.)

4.4.4   Transferring files to other directories

The *Transfer* option allows you to copy the file to a file of the same name in a different drive or directory. You must enter a

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drive/directory name, in the same way as when changing directory. A duplicate of the file will then be made in that directory.

You can also copy question files to other directories or to floppy disk when releasing them for the delivery software using the publishing facility within Question Mark - see section 8.1.3.

IMPORTANT
NOTE

It is one of the cornerstones of successful computing to keep a back-up of your data (in case of computer hardware, software or user malfunction!). You are strongly advised to take regular and frequent back-ups of all the question and answer files on your computer system.

For example, to copy a file to floppy disk A, you select the file, press F6, select *Transfer*, put a formatted floppy disk with space on it into the drive, and enter "A:".

5.   Making tests

5.1   Overview

5.1.1   Question files

A question file is what Question Mark uses to store a test in. A question file consists of questions, and general pages that define how the questions are asked. Figure 5.1 shows the structure of a question file.

Figure 5.1 Visual representation of a question file

You can have from 1 to 500 questions in a question file. Each question can be one of nine different types. The possible question types are multiple choice, numeric, word answer, fill in blanks, free format text, matching/ranking, multiple response, logical and explanation.

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Within a question, you define the question wording, the range of possible answers, what the right answer is, and how the question is scored. You can also include one or two graphic pictures for each question.

You can define the following general pages for a test. Most of these are optional, in that you do not need to define them if you don't want to.

- The Control information page, which defines the basics of how the test is delivered, including whether there is a time limit, whether answers are saved to disk, and whether the student's name is asked.

- The Introduction page, which is displayed to the student at the start of the test. This page can contain some text wording and graphics.

- The Final page, which is displayed to the student at the end of a test. You can define different final pages for different ranges (score bands) that the student's score is in. Each final page can contain text and graphics.

- The Random page that defines whether questions are to be chosen at random, and if so how.

- The Topics page that allows you to define some topics, and allocate questions to the topics. You can use topics to divide up questions according to subject area or level of difficulty, and then select or score according to topic.

- The Display page that defines how every question and page is presented to the student. Within the display page you can define a background graphic that can be displayed as a "backdrop" to every question.

- The Video page that allows you to define the colours

used in the test.

• The Keys page that allows you to define some special keys to help students enter non-standard characters in text answer questions.

You create a question file by pressing F4 from the Directory screen, and entering information to define the test.

Once you have created a question file, you can edit it by selecting it on the Directory screen, and pressing Enter. All the information you defined when creating the test can be edited. You can also create a new file by editing an existing file and saving it with a new name.

While creating or editing a question file, you can copy questions from other files into the current file. In this way you can build up a new question file by taking questions from other files. You can even define some files as question library files, and always create new ones by copying from them.

The rest of this Chapter describes the process of creating and editing a question file, and setting the data in most of the general pages. Chapter 6 covers setting questions, including a full description of all the question types. Chapter 7 covers the process of adding graphics to tests, including setting the Display and Video general pages.

An advanced feature of Question Mark is "question banking". This lets you copy questions from up to 11 different files to make a new question file. Questions are copied automatically as directed by you, normally chosen at random from all the questions in a file or topic. The question banking facility is described in section 12.8.

5.1.2   Types of test

There are three basic test types in Question Mark.

After

The student is given immediate feedback after each question. For all marked questions, the student is told whether he/she is right or wrong after answering the question.

End

In this type of test, no marking is performed until the student has finished answering all the questions. The student can then either be told the correct answers, or just the final score. In contrast to the *After* test type, students are not influenced by results of marking previous questions in answering other ones, but the feedback is less immediate.

Never

The student is not told whether his/her answers are right or wrong, nor is a score given. This type of test is suitable for questionnaires (where questions are not marked) or in other situations where feedback is inappropriate.

Provided that student answers are saved to disk (in an answer file), you will later be able to get a corrected question paper report from the computer. This shows the questions, the student's answers and the right answers, for all test types.

There are two distinct sorts of *End* test, one where you tell the student the right answers to questions, and one where you just tell the final score. The former is for use in tests with questions that have correct answers; the latter can be used in tests where you want to score answers but where there is no such thing as right or wrong. For example, in a personality test, you might want to give marks for certain personality attributes, but you would not want to describe answers as correct or incorrect.

5.1.3   Defining information by filling in boxes

In order to define a question or general page, you fill in a screen containing boxes with information. This method of data entry is also used in other parts of Question Mark. Wherever you see boxes on the screen to fill in, you do it in the following way.

Boxes are normally labelled with what they mean. To fill in or change a box, you move the cursor into it and enter the new value you want. The cursor starts off at the first (top left) box and can be moved using the mouse or with the following keys.

Tab

Go to the next box.

Shift-Tab

Go to the previous box.

Enter

Go to the next box (or to the next line if current box has more than one line).

Arrow keys

Go one space in the direction of the arrow, or go to the closest box in the direction of the arrow.

Ctrl arrow keys

Move a larger amount in the direction of the arrow, to the next or previous word, or up or down several lines.

Home

Go to the start of this line.

End

Go to the end of this line of text.

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Ctrl Home

Go to the start of the top left box of the page.

Ctrl End

Go to the start of the bottom right box of the page.

Ctrl Tab

Move to the next tab stop right, where tab stops are defined every 8 characters.

PgUp, PgDn

Sometimes there are more boxes than will fit on a single screen. In such screens, you are told on the screen that you can press PgUp or PgDn to move to other screens.

Moving the cursor swiftly to the box you want to go to takes a bit of getting used to with the keyboard, but becomes quite easy after using Question Mark for a while. If you have a mouse, you can also use it to position the cursor.

Some boxes are simple yes/no questions. In these boxes you enter 'Y' for yes and 'N' for no (or else you can change the value by clicking with the mouse). Other sorts of boxes can have numbers or text in them. In every case, you move the cursor to the box, and type in the value you want into the box. You can delete information in number and text boxes using the Backspace and Del keys.

You can insert into text boxes by typing the information you want at the point you want it. Normally, when you insert characters, existing characters are shuffled up to make room. The INS key allows you to flick between this standard way of inserting text and a "TypeOver" mode, where characters you insert overwrite the characters that were there before. The current insert mode (INS or TypeOver) is shown on the status line.

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Some Question Mark screens have large boxes able to take several lines of text (eg for the question wording). In these boxes, the computer will "wrap" words between lines automatically for you (avoiding words carrying on over two lines).

As well as the keys for moving the cursor around, there are other useful keys that apply only to text boxes.

Alt-I (Insert)

Insert a blank line.

Alt-R (Centre)

Centre this line of text.

Alt-Z (Foreign)

Pressing this key, or clicking the mouse on the smiling face symbol at the top right of the screen gives you a table of all characters the PC can display. This includes foreign and mathematical symbols that you cannot normally enter from the keyboard. You can select any character to insert by highlighting it and pressing Enter or with the mouse.

(Entering characters in this way works the same as entering characters using the Alt key and the numeric keypad. One useful character to enter for advanced users can be Alt-255, the character at the bottom right of the table. This looks like a blank space on the screen, but appears to the computer as a real character. If you want something to look blank without being so, this character is useful.)

Ctrl-C or
Alt-C (Copy)

Copy the rest of this line (the part from the cursor to the end of the line) to an internal buffer from where it can be pasted in elsewhere using the **Paste** key.

Ctrl-X or
Alt-X (Cut)

Cut the rest of this line, ie delete all the characters from the

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cursor to the end of the line. Again these characters are put in the internal buffer.

Ctrl-V or
Alt-V (Paste)   Paste in the characters last saved to the buffer (with ***Copy*** or ***Cut***) at the position where the cursor is now.

For all screens with boxes, if you want to get help about what a box is for, move the cursor into it, and press F1. Some information on the box will then appear. If you press F1 again, you will get some information on the page as a whole.

After you have filled in and/or changed the boxes you want to, you press F10 to save your changes. If there is an inconsistency in what you have entered, the computer will give you an error message (see the trouble-shooting Appendix if you don't understand it). If you want to abandon what you are editing, press F9 or ESC.

5.2   Creating a question file from scratch

5.2.1   Choosing type of test

You create a question file by pressing F4 from the directory screen. When you create a file, you choose its basic type and define the introduction page. The computer then creates a file for you, with no questions and with various sensible default options defined.

Immediately on creating a question file, you must choose what sort of test it is you are trying to create. What you have to decide in this menu is when and whether the student is told the results of marking.

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You see some information on the screen and have to choose on a menu between *Never*, *After* and *End*. To do this choose from the menu, eg by pressing "N","A" or "E". If you do not want to create a file, press ESC to return to the directory screen.

See section 5.1.2 above for what the different test types are. You can change your selection of test type later, should you change your mind. If you are a new user and unsure what to choose, try choosing *After* for your first test.

5.2.2   Defining control information

You now get the opportunity to define some key controlling information (the Control page) for the test, telling Question Mark the style of test you are setting. This is a very important part of the test setting process; you should think carefully about what you say, and perhaps come back to this page and review the information after creating and trying out your test.

Figure 5.2 shows the screen when you have chosen test type *After*. If you choose another test type, you will see a similar but slightly different screen. There are a number of boxes, with some suggested values for them. For example there is a *Time limit ?* box that has a suggested value of 'N' (no time limit).

If you are happy with the suggested values, just press F10. Otherwise change any of the boxes, using the procedure described in section 5.1.3 (moving to a box with the arrow keys, and typing the new value).

The following boxes appear for every test type.

Figure 5.2 Main screen area after selecting After test type

Title for test

This box gives you 20 characters to define the name of the
test. You should put in a descriptive name that describes what
the test does (eg "Geography test"). The title is used in many
places in Question Mark to identify the test, including when
offering the student a menu of tests to answer. You can leave
the title blank, if you want to.

Time limit ?

This box defines whether there will be a time limit for the
student to answer the questions, or whether there is as long as
is needed. If there is a time limit, you define the limit in min-
utes, to be any time up to three hours.

**Save
answers to
disk ?**

This box defines whether an answer file is to be made to hold
the answers entered by the student. If 'Y' then one is made; if
'N' one is not made and the answers are not stored on disk.

WARNING: If you do not save answers to disk, student
answers will be lost forever when they finish the test.

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***Same name
as question
file ?***

If an answer file is made, then you must define its name. If
you fill in this box as 'Y', the name used is the same as that of
the question file. If 'N', then you type in a file name (up to 8
characters) for the answer file in a ***File name*** box that appears
on the far right of the screen. (You can override this choice by
defining a different name using a command line parameter to
the delivery software - see section 8.4.1.)

***Ask student
name ?***

This box tells the computer whether or not it should ask the
student's name before doing the test. (A student name can be
any 16 characters - instead of a name, you could for example
assign numbers to each student, and get them to enter these on
answering a test.) Student names are useful to identify sets of
answers in an answer file.

***Validate stu-
dent names
against
allowed
names ?***

If you are asking for a student name, then this box defines
whether the student can enter any name, or whether the stu-
dent can only enter a name the computer considers valid. If
you do not use validation (the default), then the student can
enter any name, and the software always accepts it as legit-
imate.

If you want student names to be validated, then you must
create a student validation file with a list of student names in
(see section 12.7). If you do use validation, an extra ***Code***
box appears regarding validation - see section 12.7 for how to
fill this in.

***Passes
allowed ?***

This box defines whether the student is allowed to pass over
questions (by pressing "?" or clicking on the ***Pass*** button) and
return to them later. If 'Y' then questions can be passed; if 'N'
then each question must be answered (even with a null or
blank answer) before going on to the next one.

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***Let student
escape test ?***   This box defines whether the student can escape the test (leave
it early). If it is 'Y' then the student can escape (by pressing
ESC or clicking on the ***Stop*** button) instead of answering any
question); if 'N' then he/she cannot finish the test until every
question has been seen. Escaping can be useful, but should be
used with care, and should not be used in exams (where it
could be disastrous if the student pressed ESC by mistake).

***Make stu-
dent confirm
each
answer?***   If this box is 'Y', then the student is asked after answering
each question to press the space bar if happy with the answer
and " + " to redo it (or click on the ***Go on*** or ***Change*** but-
tons). If it is 'N', then this does not happen, and each question
follows on immediately from the last. Confirming is good in
that students get a chance to rectify mistakes, but it can
become annoying to have to confirm each answer (especially
in ***After*** tests).

The following boxes appear for some test types only.

***Let student
retry wrong
answers?
(After)***   If this box is 'Y', then whenever a student gets a marked
question wrong (anything but perfectly right), the computer
says the answer is wrong and asks the student to retry it once
(and may give a hint if you define one when you set the ques-
tion). If 'N' then there is no retry.

***Running
score?
(After)***   If this box is 'Y' then, as well as being told whether he/she is
right or wrong, the student is given the score in points for
each question, and a running total of the score to date is also
shown. If 'N' then scores are not shown.

When student told answer wrong, say right answer ? (After)

Usually, when the student is told he/she is right or wrong, the correct answer is shown. This is what happens if this box is 'Y'. If you set this box to 'N', then the student is just told whether he/she is right or wrong, but is not given the correct answer. This setting will be useful if you do not want students to see the right answers for educational or security reasons.

Let student go back and change answers ? (End/Never)

If 'Y' then, after answering all the questions (and before seeing the marking), the student can review the answers and change any of them. If 'N' then this cannot be done.

Show right answers at end ? (End)

This key box discriminates between the two sorts of *End* test types, described in section 5.1.2. If it is 'Y' then the student will be shown, at the end of the test, the correct answers to questions. If 'N' then the student will not be told which of the answers are right or wrong, nor shown correct answers.

Show for all questions? (End)

This box only appears if you are showing the right answers. If it is 'Y' then all questions are shown one by one at the end, with whether the student got them right or wrong. If 'N', then only questions the student has got wrong or has passed over are shown.

Running score ? (End)

This box only appears if you are showing the student the right answers. If so this box defines whether you tell the student the score for each question or not.

You can change the test type. To do this, press F2 and you will be given a menu of *Never*, *End* and *After* to choose from. If you do change the type, the boxes you see on the

screen will change, and you should review the new settings before exiting.

5.2.3   Defining the Introduction page

Press F10 after setting the Control page on creating a test, and you will see a page defining the introduction for the test. You can either define this now, or push F10 again immediately and return to the introduction later after you have created the questions.

You define the Introduction page by filling data into boxes. There are two boxes at the top of the introduction page, as follows.

Have intro-
duction
screen ?

This box defines whether you want to have an introduction screen at the start of the test. If 'Y', then you define the screen on this page; if 'N', then the test starts with the first question, and there is no introduction.

(Doing without an introduction screen is especially useful if you branch between tests. In such a case, you may not want the student to see screens between the end of one test and the start of another.)

Use standard
introduction?

The computer can generate a standard introduction, saying how many questions there are and whether the computer will mark them etc. If you set this box to 'Y', you use this intro- duction; if 'N' you do not.

If you use the standard computer-generated introduction, there is one box (of 7 lines) for you to put in any introduction word- ing of your own. If you do not use it, then you can define two

boxes of your introduction wording. Each box may be blank, or can contain any wording of your choice.

Pressing ESC or F9 will leave without saving; you go back a level to the control information page (and should press ESC again twice to quit completely). Pressing F10 finishes editing, incorporating what you have defined in your test. You can also use F5 to see what the introduction screen will look like to the student.

As well as defining introduction text, you can also define graphics to go on the introduction page. Pressing Ctrl Enter or pressing F2 and choosing *Graphics* takes you to the graphics editing page for the introduction screen. See section 7.3 for more details on graphics.

5.2.4   Entering the rest of the question file

When you press F10 after defining the introduction, you will see a screen saying *There are no questions* inviting you to press F4 to create a question. You now have a file with no questions in it, that you can edit in the same way as you edit all question files.

You must add at least one question to the file before you can save it. You normally create each question using F4, enter data into it, press F10 to finish that question and repeat the process. You may also re-edit the Control and Introduction pages, and set other general pages for the test (by pressing F2). Press F10 again to finally save the file.

If you plan to use the Question Mark reporting facilities to report on answers to a test, it can be worth answering the test a few times while creating it, and looking at some sample reports. Sometimes doing this can influence the way you design

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your tests.

Section 5.3 describes the general process of editing a question file. There are some additional pages of general information in a question file. The Final screen page is described in section 5.4; topics and the Topics page is described in section 5.5; the Random and branching page is described in section 5.6; and the Keys page is described in section 5.7. Section 5.8 describes how to go to other files to copy questions in from them.

Creating and editing questions is described in Chapter 6. If you are reading this manual for the first time, you may wish to jump over the rest of this chapter, and go straight to Chapter 6.

Adding graphics to tests is described in Chapter 7, as well as editing the Display and Video general pages that have a close relationship with the graphics in a test.

5.3   Editing a question file

5.3.1   Question display

You edit a question file by pressing Enter when it is highlighted on the Directory screen. When editing you can look at and change the contents of a question file. The changes are only saved to disk when you press F10. While editing a question file, the display shows each question in the file on one line, as in Figure 5.3.

Each question is numbered consecutively from 1. The first 25 letters of the question wording and the question type are displayed for each question. If there are more questions than will fit on one screen, then they are shown 16 to a page.

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```
      Question wording            Type      Graphic

  1   What is the capital of It... Word
  2   Three of the following co... Response
  3   Rank the following countr... Match
  4   ----- is the most populou... Blank      PICTURE
  5   How many states are there... Number
  6   Name any country (except ... Free
  7   One, and one only, of the... Choice



 Control   Intro    Final    Random    Topics   Display   Video   Keys
```

Figure 5.3   Question display screen

If the question has a graphic, then the name of the graphic file is shown on the screen. In the Figure, there are seven questions, and question 4 has a graphic file, called PICTURE. (See Chapter 7 for an explanation of graphic files.)

At the bottom of the screen is a list of general page names. You can click on these names to edit the page.

If you are using topics (see section 5.5), then the topic each question is in is shown at the far right of the screen.

5.3.2   Selecting the current question

When there is more than one question in the file, one of them is always selected as current. This is shown by the question wording being highlighted. You can change the current question in the following ways:

- using the Up/Down arrow keys to go up or down one question;

- using the PgUp/PgDn keys to go up or down a page of questions;

- using the Home key to move to the first question;

- using the End key to move to the last question;

- typing in the number of the question you want to go to;

- using the mouse to point at the question.

5.3.3   Functions available

You can do the following from the main question display.

Editing a
question

To edit a question, you first select it, and then press Enter or else click on the question wording text area of the screen. This lets you look at and change the question, including the question wording, correct answer and scoring information.

Editing
graphics for
a question

You can edit the graphics for a question while editing a question. However to directly edit the graphics from the question display screen, you press Ctrl Enter, or click on the graphics file name area of the screen.

Editing a
general page

There are eight general pages in the question file - Control information, Introduction screen, Final screen, Random, Topics, Display, Video and Keys. To edit one, you can do any of the following:

- Press F2 and choose which page to edit from a menu.

- Click on the general page name at the foot of the screen (eg click on *Intro* to edit the Introduction page).

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● Type in the first letter of the general page name, eg "I" to edit the Introduction page.

Allocating questions to topics

If you have set up topics in the topics page you can allocate questions to them by pressing Space from this display. See section 5.5 for details of this.

You can also use the following function keys.

F3

Go to another file, to view it and, optionally, copy questions from it back to this one. See section 5.8.

F4

Create a new question after the current question. See Chapter 6. Each question file can contain up to 500 questions.

F5

See what the current question would look like to a student, by answering it.

F6

On pressing this key, you see a menu of **Copy** (copy one or more questions), **Move** (move one or more questions) and **Delete** (delete current question). These are described below, in sections 5.3.5, 5.3.6 and 5.3.7.

F9 or ESC

Stop the edit and return to the directory screen, without saving to disk. Any changes or edits you have made are lost. If you have made any changes to the file, Question Mark will ask you to confirm whether you wish to quit.

F10

Save the file to disk and return to the directory screen. See section 5.3.4 below for details on saving.

5.3.4   Saving

Before you can use a file that you have created you must save it to disk. This happens when you press F10. If you do not save the file, your data will not be saved - and you will have to re-type it into the computer.

It is sensible to save your data at regular intervals (at least once an hour) as well as when you are finished with creating or editing it. If there is a power cut or a system crash, you will lose all the data entered since the last time you saved.

It is also sensible to make a back-up copy (a second supple-mentary copy) of all the files that are important to you. You can do this from the Directory screen (see section 4.4.4) or by using DOS. Back-up copies should normally be on floppy disk, and, for really important files, you may wish to store your back-up in a different place to your computer, so that a fire or robbery will not cause you to lose your files.

When you are creating a file, after pressing F10, you must enter the file name to save to. This can be any legal file name (up to 8 characters). The file is saved to the current drive and directory - if this is a floppy drive and the disk is full, you can put another empty formatted floppy in to save the file to.

When you are editing a file, after pressing F10, you choose on a menu between *New* (save the file with a new name), *Same* (delete the previous file and put the new one in its place with the same name) and *Re-edit* (do not save yet; go back and re-edit).

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If you save a file with the *Same* option, you write over the previous data and cannot recover or access it; it is convenient, but slightly dangerous to use this option. (For the few seconds it takes to execute such a save, the computer makes a temporary .BAK file, deleting any existing one; if things go wrong during the save, eg the power fails, and you lose data, the .BAK file should be there, and you may be able to recover your data by renaming the .BAK file to a .QUE file.)

5.3.5   Copying questions

Copying questions duplicates them so that the same question appears more than once in the file. The most likely reason for doing this is that if you want to have similar questions in the file, it may be easier to make one and then copy and change it, rather than create each question from scratch.

Select the *Copy* option, tell the computer which questions you want to copy, then where you want to put them.

One of the questions you copy is always the current question. If you only want to copy that question, press Enter on being asked which questions you want to copy. Otherwise you select a range of questions by choosing one other question and then you will copy all questions between the current and that one.

You select the other question in the same way as you select the current question normally (typing in its number, using the arrow keys or mouse etc.). Questions in between are highlighted. When you have the right range, press Enter.

You then choose where to put the copied question(s), by typing in the question number you want the first copied question to have. Other questions are shuffled around to make room as necessary. If you want to cancel the copy at any point, just press ESC.

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If you run out of memory when copying questions, as many questions as there are room for are copied. Similarly if there is no choice as to what to do (eg there is only one question in the file to copy), the computer will take the sensible course of action.

5.3.6   Moving questions

Moving questions does not change the total number of questions in the file. It just changes the order they are in. Moving is very similar to copying; you select the questions, then where to put them.

5.3.7   Deleting a question

To delete the current question, press F6 and select **Delete**. You are not asked for confirmation (so as to make deleting lots of questions easy). The question is removed from the file, and the others shuffled down to take its place.

If you delete a question by mistake, you can only recover it if you have previously stored it to disk (and you are currently editing).

There are two ways of doing this. Either quit (with F9) from the edit - which loses all the changes you have made, including deletes; or use F3 to go to and view the same file again and copy this question only over (see section 5.8).

5.4   Scoring and the final screen

5.4.1   Scoring

After the test, the student is shown a final screen. If you do not define one this will be a default (mostly blank) screen set up by the computer. You do not automatically get to set up a final screen on creating a file; you have to edit the page, eg by pressing F2 and selecting *Final*.

Before explaining how to edit the final screen, here is some explanation of how scoring works.

Question Mark gives the student a mark for every question in the test. For unmarked questions, and questions the student passes over, the mark is zero; for other questions it depends on the scoring criteria you set up for each question. For more details on how each question is scored, see section 6.1.2; each question can receive a score in points from -99 to +99.

At the end of the test, the total score is computed. Total scores are limited to the range -32768 to +32767. In the (unlikely) event that you create a test where the total scores exceed these figures (you would need an average of 65 points per question), you will not be allowed to save the question file, and will have to reduce some scores.

The computer also works out a percentage score. It does this by working out the maximum (best possible) and minimum (worst possible) scores the student could have got. If questions were chosen at random, these minimum and maximum scores may vary according to which questions were chosen. The percentage figure is calculated as the closest whole percentage number to the ratio of the student's score between the minimum and the maximum score. If the student gets the minimum score, the percentage score is 0%; if he/she gets the maximum

score the percentage score is 100%.

If you assign negative scores to questions, percentage scores work slightly differently to what you might expect. This is because the minimum (worst possible) score can be less than zero. For example if the maximum score is 40, the minimum score -10, and the student's score is 20, then the percentage is 60%, as the student is 60% of the way between -10 and 40, even though you might expect that 20 out of 40 would be 50%. If you do not like this way of calculating percentage scores, you can define in the setup file that percentages are always calculated assuming the worst possible score is zero (so that the student would get 50% in the above example). See section 12.2 for more information on this.

In any case, scores are only told to the student if you have defined that they should be.

5.4.2   Score bands

When defining the final screen, you can define different messages depending on the student's percentage score. You define what are called score bands, which are ranges of percentage scores. For example you could define two score bands, one from 0 to 49% and one from 50 to 100%. Or you could define six score bands 0-10%, 11-30%, 31-50%, 51-70%, 71-90% and 91-100%.

If you have questions chosen at random in your test, and the possible marks for questions are not all the same, then two students with the same total score may get different percentage scores, and be in different scoring bands.

For any test where you do not define score bands (eg *Never* tests), there is only one (implicit) score band: from 0 to 100%.

5.4.3   Calling up other question files

You can define links between question files, where one question file calls up another one. For each score band you can name a question file; if the student scores within this band, then the delivery software will run this question file next, automatically, and without asking whether the student wants to. There are a lot of possible uses for this facility, but because using it will link question files together, you have to consider a lot more effects. Creating a good set of linked tests is generally harder than creating a series of good but separate tests. This facility is probably best only used after you have become familiar with Question Mark.

One of the things you can use this facility for is to get a student to re-do a test if it is done badly. Or else you could operate a simple branching system where diagnostic tests are chosen depending on previous scores. As well as branching between tests in this way, it is also possible to branch within a test (see section 5.6 below).

5.4.4   Editing the final screen

On the display for editing a final page, you can enter data into the following boxes. (The boxes for score bands and telling the student the score are not present in *Never* tests, where the student is never shown the score.)

***Show final
screen at
test end ?***

If you set this box to 'Y', then you have a final screen at the end of the test (as normal). If you set it to 'N', then you do not, and go straight to the next test (or back to DOS). Even if you do not display a final screen, you can still set score bands and go to other files dependent on them.

**Print final
screen ?**

If this is 'Y', then when the final screen is shown to the
student, the computer tries to print out a copy of the screen.
This can be useful if you want a simple hard copy of the
student's score.

Printing the final screen works via DOS, and will only work if
the printer is set up correctly. See section 8.3.4 for more
details on this.

**Tell score in
points ?**

If this box is 'Y' then the student is told on the final screen the
test score in points (eg 25 out of 45 points). If 'N' then no
points score is given. (You would normally want to set this
box to 'Y' if you have given the student a running score).

as percent ?

If this box is 'Y' then the student is told on the final screen the
test score as a percentage (eg 50%). If 'N' then no percentage
score is given. If both this and the previous box are set to 'N',
the student is not told the score at all.

**Tell topic
scores ?**

This box only appears if you are using topics in this test. If set
to 'Y', then the final screen shows a list of topics and topic
percentage scores; if 'N', then these are not displayed. You
can display topic scores as well as or instead of the test score.

**Number of
score bands**

This can be from 1 to 6. If it is 1 then there is one score band
from 0 to 100%. If it is 2, then there are 2 score bands one
from 0 and one to 100; you can set the middling figure in the
box to the right. And so on for other numbers. The number
you enter to define the score band is the top of the score band
(ie if you set it to 50, then this score band ends at 50%, and
the next one starts at 51%).

Branch to other test ?

If this is 'Y' then another question file (as in section 5.4.3) will be gone to. Boxes appear on the right for you to set the question file name (do not put a path or extension), and to supply a password for the next question file if one is needed. If this box is 'N' (as it will normally be), then each question file operates independently.

Conclusion wording

At the bottom of the screen is a box for a text message to be given to the student at the end of the test. You set and edit this message in the same way as editing the question wording.

Figure 5.4   Main screen area while editing the final screen

If there is more than one score band defined, then there are different conclusion wording and other file boxes for each score band. Only one set of boxes is shown at one time; and you cycle between the score bands by pressing the PgUp and PgDn keys (or by clicking in the box showing the current score band).

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Figure 5.4 shows an example display while editing the final screen page. In the Figure, there are four score bands (0-25%, 26-50%, 51-75% and 76-100%). The conclusion wording on the screen applies to the score band from 51% to 75%. If a student scores in that band, he/she will get this message and be asked the questions in file TEST2 (which is password protected by the password ALPHA).

As well as defining text to go on the final screen, you can also include graphics. You edit the graphics by pressing Ctrl Enter, or pressing F2 and choosing **Graphics**. You can have different graphics for each score band, and the graphics edited are for the current band. See section 7.3 for how to edit the graphics for a question or page.

You can get an idea of what the final screen will look like to the student by pressing F5.

5.5   Topics and the Topics page

5.5.1   Topics

You can divide questions in a test into up to 12 topics. Topics have the following effects.

- You can randomise questions by topic, choosing a certain number of questions from each topic. See section 5.6 for how to randomise questions.

- The computer calculates a score in each topic, and you can display this score on the final page (see section 5.4.4), and in reports (see section 10.3).

- You can also use topics to help you set up question banks

or libraries using the Question Mark question banking facilities (see section 12.8).

The normal way of using topics is to represent subject areas. Thus questions in different topics are in different subject areas. You can then score on subject areas within a test as well as on the whole test. You can also select randomly to ensure that a test consists of a certain number of questions in each subject area.

Another way of using topics is to represent levels of difficulty. Sometimes you might be able to allocate questions into different categories according to how difficult they are, for example into "easy", "medium" or "hard" questions. (The Question Mark Statistics report described in section 10.3.9 might help you do this.)

If you assign questions to different topics according to their level of difficulty, you can then randomly select a certain number of questions from each difficulty level. Then the test is different every time it is presented, but there are always the same number of easy, medium and hard questions.

You can use topics to represent subject areas, difficulty levels, or any other division of your test that you find useful.

5.5.2   Editing the Topics page

You edit the Topics page by clicking on *Topics* from the question display screen, or selecting it from the menu of general pages.

The normal situation is that topics are not defined. In order to define topics, you need to set the *Allocate questions to separately scored topics ?* box on the Topics page to 'Y'.

You then define the names of up to 12 topics. You have 20 characters for each name. As usual, to save the topics information, you press F10. You can rename topics at any time by returning to this page.

Figure 5.5 shows an example topics page; there are four topics - Birds, Mammals, Reptiles and Amphibians. By each topic, the computer shows the number of questions presently allocated to each topic, and the minimum and maximum scores achievable in the topic.


```
        Allocate questions to       — —
        separately scored topics ?  | Y |   (Put questions in topics with space
                                    |___|     bar from question display screen.)

        Names of topics             Questions        Minimum      Maximum
                                                      score        score
    1   Birds                          10               0            50
    2   Mammals                        10               0            50
    3   Reptiles                        5               0            25
    4   Amphibians                      5               0            25
    5                                   -
    6                                   -
    7                                   -
    8                                   -
    9                                   -
   10
   11                                   -
   12                                   -

        Total for test                 30               0           150
```

Figure 5.5 Main screen area while editing topics page

At the foot of the screen is the total number of questions in the test, and the minimum and maximum scores for the whole test. (This line appears even if you do not use topics, and can be useful to look at when creating a test, so as to know what the possible scores are.)

The minimum score is normally the score if every question is wrong, and the maximum score is if every question is right. If you are selecting questions at random, then the number of

questions in each topic is shown, but the minimum and maximum scores are not.

5.5.3   Allocating questions to topics

When you first define the topics in the Topics page, any existing questions are allocated into the first topic in the list. You change the allocation of questions from the main question display, as follows.

- Select a question as current.

- Press Space.

- If you just want to set the topic for the current question, press Enter. To set it for several questions, select them with the arrow keys or mouse, and then press Enter.

- Choose the topic that you want to set for the question or questions from a menu of available topics.

The topic each question is in is shown at the far right of the question display.

When you copy questions in from another file (see section 5.8), they are allocated to the first topic in the file if they do not already have a topic defined. If they do have a topic defined, Question Mark adds that topic into the file, if there is room. If there is no room, you get a warning message, and will have to amend the topic allocation yourself.

5.6   Randomising and branching

5.6.1   Randomising question order

The Random page lets you define randomising and branching. If you do not define this page, then question order will not be randomised (all questions will be asked in the order in the question file), and no branching between questions will be allowed.

Instead of presenting all questions in a test, you can get Question Mark to choose at random some questions to present and to shuffle the order of questions. If you do this, then each time the test is asked, the student will see a different selection of questions in a different order. This can be useful for many reasons - for example to stop students passing information about the test to others, or to remove any possible bias caused by the order of questions.

You have several options on randomising questions.

- Have no randomisation at all (the default option).

- Choose to use all questions, but to randomise the question order.

- Choose to use just some questions selected at random from the whole test, and randomise the order.

- If you are using topics, select a certain number of questions from each topic at random, and then randomise the order of questions.

Unless you are randomising by topic, you can also define some questions as "golden". Golden questions are always selected in, and always appear in the place you have defined them.

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Golden questions are useful if you have some questions which are more important than others and will always need to be asked, or if you want a particular question always to be in a particular place but with the rest randomised (eg if you want a standard question number one which asks students their course details).

5.6.2   Branching between questions

Question Mark supports a limited kind of branching between questions, so that you can move to a different question depending on the answer to a previous question.

Branching is an intrinsically complex thing to do, and you should only use branching once you have become familiar with Question Mark. In order to use branching, you need to set a box in the Random page to 'Y', and until you do this, branching is disabled.

You can only branch within a test, if the following things apply to the test.

- Question order cannot be randomised.

- Students should not be allowed to pass over questions and do them later.

- Students should not be allowed to go back and change their answers later.

(If for example, branching applied in a test where students could pass over questions, then it would be hard to find a sensible action to take if a student passed over a question that led to different further questions depending on the answer.)

The limited branching that is supported allows forward

branching only (ie you can only branch by skipping over questions, not by going back to questions before this one). You can also only branch from unmarked questions, and how this works is described further in Chapter 6 on creating questions.

Remember that as well as branching between questions, you can also branch between tests - see section 5.4.3 above.

5.6.3   Editing the Random page

When editing the Random page, you can set the following boxes.

Choose questions randomly ?

This box defines whether any randomising is performed. If set to 'Y', then questions are randomised. If 'N' then they are not.

Choose all questions ?

If randomising is to be performed, this box defines whether you want to include all questions, just randomising the order, or else (if set to 'N'), if you want to select some of the questions only.

Choose questions by topic ?

If you are choosing some questions, and the questions are divided into topics, then you can choose questions by topic. To do this, set this box to 'Y'.

Number to choose

If you have chosen to select questions by topic, then you must define the number of questions from each topic to choose. You see on the screen a list of the topics in the test, and define the number to be chosen from each topic. If you are not choosing by topic, then you define the number to choose from the whole test.

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Before saving a question file to disk, the total number of questions you choose to include in a test must be between one and the total number of questions in the test.

Have golden questions ?

Unless you are randomising by topic (when golden questions are not available), you can then define some questions as golden, ie always selected in and always at a fixed position. To use golden questions, set this box to 'Y'.

Branch between questions ?

If you are not randomising questions, and the Control page is set appropriately (see above), this box will appear. Set it to 'Y' if you want to branch between questions.

Golden questions

If you choose to have golden questions, then boxes appear on the screen for you to enter their question numbers into. You can define up to 20 golden questions.

Put the number of each question you want to make golden in one of the boxes for golden questions. Leave as zero all the other boxes. Each golden question will be presented at its position in the question file. So if question number 1 is golden, then it will always be in the test and always at position 1.

You can think of golden questions as islands of rock in a sea of changing questions. Each golden question must be in the first part of the test. Thus if you are selecting 30 questions out of 100, then any golden questions must be within the first 30. You may need to move questions round the file to do this. If questions are randomised, then the number of the question in the question file is unimportant unless the question is golden.

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```
Choose questions randomly ?  [Y]         Choose all questions ?  [N]

Choose questions by topic ?  [N]         Number to choose  [30  /  100]

     Have golden questions ?  [Y]

Golden questions that are always chosen in same position (0 means not used)

[1]  [0]  [0]  [0]  [0]  [0]  [0]  [0]  [0]  [0]

[0]  [0]  [0]  [0]  [0]  [0]  [0]  [0]  [0]  [0]

Branching is only possible if questions are not randomised.
```

Figure 5.6 Main screen area while editing the Random page

Figure 5.6 shows an example Random page. There are to be 30 questions chosen at random from 100, and one question is to be golden, question number 1.

5.7   Editing the Keys page

The Keys page lets you provide a way for students to enter non-standard characters on the keyboard. You can define Alt key combinations that the student can use to enter foreign or mathematical symbols.

In this way, if you are asking questions that need a reply in a foreign language, or need characters not available on the keyboard, then you can provide the characters as Alt keys. For example, if you are delivering a test in French using an English PC, you can provide the accented characters used in French as Alt keys so that the student can use them in answers.

This page has effect in text answer questions (word answer, fill in blank and free format answer), where the student has to type in an answer as text.

Figure 5.7 shows the screen while editing the Keys page. In the Figure, three keys are set up to represent characters with "umlauts". Thus Alt-A is "ä"; Alt-O is "ö"; and Alt-U is "ü".

Figure 5.7 Main screen area while editing Keys page

In order to use the facility, you need to set the *Let students use Alt keys for non-standard characters ?* box to 'Y'. You can assign non-standard keys to the key combinations Alt-A through Alt-Z and Alt-1 through Alt-0 (ie holding down the Alt key and pressing the other key).

You can define up to 18 key combinations, and the student is told about them in every text question. (You can define more than 18, but if you do there is room to tell the student only about the first 18.)

In order to assign a key, you type in the character that the

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combination is to represent on the screen. You can choose from any available PC character. Upper and lower case characters are treated separately. To get a list of all PC characters, press Alt-Z, or click on the smiling face at the top right of the screen.

Among the characters available are accented and other non-english characters, and several mathematical characters. Try it and see. As usual, you press F10 to save the information on this page.

5.8   Copying from another file

5.8.1   Choosing a file to copy from

While editing or creating a question file, you can call up another question file. You can either do this to view it (without having to leave the file you are editing), or to copy some questions or general pages from it into the file you are editing.

To choose another file, press F3 from the main question display. You then enter the question file name. This can either be a simple file name or one with a path (drive or directory) before it. For example to go to a file GEOG in the same directory as you are in now, just type "GEOG" on being asked for a file name. To go to this file on drive A, type "A:GEOG".

You are allowed to go to the same file that you are editing, and in this case you go to the original copy stored on disk (which can be useful, if for example, you delete a question by mistake, and want to recover it). You can only read data from the file you go to, and you always return to the file you are editing after reading it.

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If you try to go to a file to view a second time while editing one file, you can choose on a menu between *Again* (go to the same file as last time) or *New* (choose a new file name). Using the *Again* option, you can switch easily between two files.

The whole of the question file is not read in from disk when you view it; in order to be able to edit and view large files, questions from the viewed file are only read in when they are needed. (If you do run out of memory while viewing a file, you could try pressing F10 and then viewing it again.)

5.8.2   Copying questions

The display while viewing a file is similar to that while editing it. The top line is shown highlighted (to help you remember that you are viewing the file and not editing it). You select a current question in the usual way.

- To look at a question to see if it is one you want to copy, use the F5 key to try it out.

- To mark questions for copying, use the F6 key. Pressing it again for a selected question unmarks the question. The question types of questions that are marked for copying are highlighted.

- To mark all questions (in the file or in one topic) for copying, use Space. Use F6 to unmark some if this marks too many.

- To stop looking at the file, and copy all the questions to the end of the file you are editing, press F10. To cancel any copying, use F9 or ESC.

When you copy questions from a file on a different path, the software also copies any graphics files referenced, unless files

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of the same name are already on the current path.

5.8.3   Copying general pages

As well as copying questions, you can also copy some of the general pages in a test. You can copy the Intro, Final, Video and Keys pages.

To mark a general page for copying, click on it, or use F2, and select the page. The page is shown to be marked for copying by the page name being highlighted. You can unmark it by selecting it again.

When you press F10 to complete viewing and copying, the marked general pages are copied over into the test you are editing. Unlike questions which are added to the test, copied general pages replace the data that is there already. If you have already defined an introduction screen for example, and you copy another one in, you will lose your original screen. (Use ESC or F9 before saving, if you do this in error.)

You cannot copy the Control, Random, Topics or Display pages. If you need to copy this data from test to test, you must re-enter it, or else copy the whole file and change it.

6.   Setting questions

6.1   Question types and computer marking

6.1.1   Question types

This Chapter describes how to create and edit questions. It starts with an overview of the types of questions that Question Mark supports, and of how the computer marks questions. Section 6.2 then describes how to go about creating and editing questions, and sections 6.3 to 6.11 describe each question type in detail.

There are nine question types (or frameworks) available in Question Mark. Questions in the same test can be of different types. Each question type has its own section later in this chapter, but a brief description of them all is given here, with some example questions.

Multiple choice

In multiple choice questions, the student chooses one out of a number (2 to 6) of answers. Special cases of multiple choice questions include yes/no, true/false and evaluation (where the student selects from strongly agree, agree, disagree (etc.) options). Typical questions are:

Is it true that the Amazon is the longest river in the world?

Choose the one of the following strategies that seems best to you.

Numeric

In numeric questions, the student enters the answer as a number. You can either allow all numbers as valid entries, or restrict it to a range of small integers. Typical questions might

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be:

What is the temperature in degrees Celsius assumed for the ICAO standard atmosphere?

How much is the maximum expenditure you can make without needing to get a purchase order signed by your manager?

Word answer

In word answer questions, the student must enter the answer as a single word (without spaces). Typical questions might be:

What is the French word for "sickness"?

Which MS-DOS command is used to delete a file from disk?

Fill in blanks

In fill in blanks questions, you leave one or more gaps in the question wording for the student to fill in. Typical questions might be:

The SI unit of electric power is the ----.

The two largest countries in the world are first --------- and then ---------.

Free format

In free format answer questions, the student can enter one or more lines of text information of any kind. Typical questions might be:

Please type your full address (including postcode).

What is the first thing you should do if you detect an unidentified aircraft in restricted airspace?

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Matching / Ranking

These questions either ask the student to assign numbers to answers as a matching question or else to place a number of answers in order as a ranking question. Typical questions might be:

Put a number from 1 to 9 by each of these courses to signify how useful you think they were to you.

Place these countries in order of geographical size.

Multiple response

In multiple response questions the student is offered a number of answers (2 to 12). He/she can select zero, one or more of them. Typical questions might be:

Select those of the following countries that are in Asia.

Which of the following species are native to Australia?

Logical

In logical questions, the student is shown a number of statements (1 to 6), and must mark each statement true/false or yes/no. Statements can also be left unanswered if the student does not know. Some example questions might be:

Which of the following statements concerning liquid oxygen are true and which false?

Here is a list of statements. Answer Yes for each one that is true and No for each one that is false. Do not answer for statements that you are not sure of.

Explanation

Explanation "questions" are a paragraph or two of explanatory text or instructions, requiring no answer. (You might think of them as notices or no answer questions.) You can use them to

tell the student what is happening, or to present or remind about some information. For example:

The next question will be about the experiment you did last Thursday lunchtime. Please refer to your notes of the experiment before answering the question.

The next half of the test is on accountancy procedures.

6.1.2   Computer marking

Explanation questions cannot be marked; all other questions can be marked or unmarked. An unmarked question is simply asked and the answer recorded. For a marked question, the computer asks the question, stores the answer and marks it. (The computer only tells the student whether he/she is right if you have set the test up that way.)

For example the question "What is your address?" would not be marked, but the question "What is the capital of France?" might be marked, with a good score if the answer was Paris, and a less good score otherwise.

Normally, for the computer to know how to mark questions, you define one or more right answers, and a score for being right and a score for being wrong. The computer compares the student answer with the right answers, and if it is right, he/she gets the score for being right; otherwise he/she gets the score for being wrong.

Some question types allow an interim score for being partially right (eg right but with a mistake in the spelling). Other question types also allow what is called "special" marking, which is when the question is marked with varying point scores, without any one answer necessarily being right. For example in a multiple choice question, you can assign a score in points to

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each possible answer, and this is the score the student gets. More details on the way each question is marked is given later.

Scores can be negative or positive; the higher the score, the better the student has done. The score for one question must be between -99 and +99. You may wish to assign more points for more difficult questions or you may want to make all questions worth the same score. It is generally sensible to use low scores (eg 1, 2, 5 or 10 for getting each question right), as lower numbers are easier for people to grasp.

Unmarked, unanswered and passed questions are always given a score of zero. Note therefore that if you use negative marks, passing a question could score more than getting it wrong. Negative marking is not recommended unless you have a particular reason for wanting to use it.

The final score for the test is the sum of scores for all questions. See section 5.4.1 for how this is converted to a percentage score.

6.1.3   Hints and reasons if wrong

There is a facility to define a one line explanation message to be given to the student if the question is answered wrongly. In multiple choice questions, this message can be different for each answer the student makes; in other questions, it is the same whatever the student answers. You can leave this message blank if you do not want to use it.

If you have selected the **After** test type, and set each question to be retried, this message is given to the student as a hint, on being told to try again. Otherwise, in **After** and **End** tests, the message is given as a reason with the message telling the student the answer is wrong.

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Hints and reasons are not defined in **Never** tests as the student is never told that answers are wrong. In these tests, you can still have the computer mark questions, but the results and scores will only be accessible from the answer file.

(Note: the same place on disk is used to store the hint and reason messages. If you change a test from **End** or **After** without retry to or from **After** with retry, or if you copy questions between two such files, messages that were hints get used as reasons and vice-versa.)

6.2   Creating and editing questions

6.2.1   How to create a question

To create a question, press F4 from the question display. The question created will be placed after whatever you have selected as the current question. If you want to move it after you have created it, you can do so using the F6 key.

On creating a question, you see on the screen a menu of question types and some information about them, and you must choose the type of question you want to create. You can get more information by highlighting the menu option (using the mouse or Space or arrow keys), and pressing F1. Select a question type by clicking or pressing Enter when it is highlighted, or by pressing the first letter of its name.

After choosing the type of a question, you are then asked how the question is to be marked (except for explanation questions, which are always unmarked). You can choose that the question is marked, unmarked, and for some question types specially marked. There are also some additional options for multiple choice questions, described in section 6.3.3.

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On creating a question, after selecting the question and marking framework, you must enter the question wording and other information (eg the correct answer) to define the question. When you create a question, some of the boxes defining it have values already set. These are values chosen by the computer, and normally reflect values you have entered in previous questions.

If you need to change the type of question or whether or how it is marked, after creating it, you can do so with the F2 key as described below.

6.2.2   Editing a question

You edit a question by pressing Enter when it is the current question. Editing and creating questions works in the same way.

You fill in all the question details in boxes, in the same way as for the question file general pages (and as described in section 5.1.3). The different question types have varying characteristics, but all of them have a question wording box at the top of the (first) screen.

Question
wording

The question wording is the text you use to ask the question. It can be up to 7 lines long and each line can hold 72 characters. Questions may not be longer than this. On creating a question, the question wording box is blank and the computer displays *Put question wording in this box* in it. You fill in this box, by moving the cursor to it, and entering text. Other text is moved up to make way. The computer automatically stops a word wrapping over two lines by moving it to the next line when necessary.

These other boxes can also appear for most questions.

Right / wrong scores

These boxes appear in all marked questions, except special marked ones. You define the score for being right and the score for being wrong. The score for being right must be at least as high as the score for being wrong.

Hint or Reason

As described above, you can define a hint or reason for questions, to be given when the student gets a wrong answer. For most questions, this is defined in a single line box at the bottom of the screen. You have 70 characters in which to put your message.

Questions to skip

If you have set branching between questions to be allowed (see section 5.6.2), then you will see this box at the bottom right of the screen for all question types except multiple choice, *provided that the question is unmarked*. (See section 6.3 for how branching works from multiple choice questions.) If you leave the box as zero, it means that no questions are to be skipped - ie that the next question is to be gone to after this one. If you put in a number here, then that is the number of questions to be skipped.

Thus if you put in 3, then you skip 3 questions; if the current question number is 4, you go to question number 8. Skipping beyond the end of the test just counts as skipping to the end of the test. If you use branching and you delete questions after setting branching up, you can branch to questions you didn't plan to. If you use branching, you ought to check your test even more carefully than you should normally, to check that it does what you want in all possible circumstances.

The other boxes for each question are described under each question type. You enter or edit the data using the standard

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ways for filling in boxes (refer to section 5.1.3 for a full description).

You can also use these commands.

F1

Pressing F1 gives you help on the box that the cursor is currently in.

F2

Edit the graphics for the question, change the question type, or change whether or how it is marked (ie change between unmarked, right/wrong marked and special marked). You choose what to do via a menu. When you change to a different question type, the question wording, and as much other information as possible, is transferred over between question types.

F5

Try out the question, to see what it would look like to a student. This is a very useful facility to check you have set the question correctly.

F9

Stop editing and abandon the data. If creating, abandon the create. If editing, restore the original question. ESC also does this.

F10

Finish editing and return to the list of questions.

Ctrl Enter

Pressing the Ctrl and Enter keys at the same time takes you to the page for editing the graphics for the question (see section 7.3).

6.3   Multiple choice questions

6.3.1   First multiple choice screen

In a multiple choice question you offer the student some poss-
ible answers, and he/she chooses one of them. Normally the
student chooses which answer to select by using the arrow keys
or mouse to highlight an answer. By changing the setup file,
you can allow the student to choose an answer with the number
or letter keys (see section 12.2).

The information in a multiple choice question is spread over
two screens. The first screen defines the question wording and
some other information. Figure 6.1 shows a screen for a
typical question.


```
 Only one of these file names is a legal DOS file name. Which one ?




No. of    Shuffle        Use two lines
answers   answers?        for answers ?
  ___     ___             ___
   4     | Y |          | N |
          ‾‾‾             ‾‾‾
Choices are displayed on second page. Press PgDn to see them.

Right/wrong scores
  _____
 | 1 | 0 |
  ‾‾‾‾‾‾‾
```

Figure 6.1   First multiple choice question screen

The meaning of the three boxes in the middle of the screen is
as follows.

No. of *answers*	This is the number of choices to be offered (from 2 to 6).
Shuffle *answers?*	This box indicates whether or not the computer is to randomly shuffle the order of the answers when presenting them to the student. Randomising the order of the answers can be useful because it removes any possible bias as to where the correct answer is, and also makes the test seem different each time it is asked.
Use two *lines for* *answers?*	By default, multiple choice questions use one line for each answer. However, for questions with 2, 3 or 4 answers, you can use two lines for each answer, if you set this box to 'Y'. Using two lines makes the screen slightly more cumbersome when the question is asked, but otherwise has no disadvantages.

6.3.2   Second multiple choice screen

The second screen defines the answers or choices. You have 70 characters for each choice (or two lines of 70 characters if you are using two lines).

To the right of each choice, you enter some information, which varies depending on how the question is marked.

- If the question is right/wrong marked (as in the example in Figure 6.2), you put 'Y' if the answer is right, and 'N' if it is wrong. At least one answer must be right, and you can set more than one answer to be right.

- If the question is special marked, you put a score in points from -99 to 99 by each choice, and this is the score the student gets for selecting that choice. You will

probably want to give positive marks to "correct" answers, and zero marks to "wrong" answers.

- If the question is unmarked, and branching is active, then you can define a number of questions to skip to, so as to jump to different questions depending on the student answer.

```
Answers                                                        Correct
_____
HELLO.DOC                                                         Y
HI:THERE                                                          N
THANK YOU                                                         N
GOOD BYE                                                          N
_____

Reason/hint line for each answer    For question wording press PgUp
_____
The others have illegal characters in them, or are too long.
Colons are not allowed in file names.
File names are limited to 8 characters plus an extension.
Spaces are not allowed in file names.
```

Figure 6.2   Second multiple choice screen

Hint or
Reason

If hints or reasons are being used, then at the bottom of the screen, there is space for a hint or reason message for each choice. For each wrong answer (or ones that are less than maximum in special marking), this message is given as a hint or reason in the usual way (see section 6.1.3). There is a different one line hint or explanation for each wrong answer.

If you put a message by a right answer, then this is treated as an explanation message, which is given to the student when told that this answer is the right one.

6.3.3   Yes/No, True/False and Evaluation questions

When creating a multiple choice question, you are asked whether the question is to be marked right/wrong, unmarked or special marked. There are three additional options provided on this menu. These are templates, which provide short-cuts to certain common kinds of multiple choice questions - yes/no, true/false and evaluation questions.

If you select yes/no or true/false when creating a question, you are given a multiple choice question with two answers, and all you need to do is to set the question wording and which one is right. The yes/no and true/false options are just a short-cut to save you the bother of having to type in something that you might need to do a lot. They are initially set marked right or wrong, but you can change them to unmarked or special marked using F2.

The evaluation option is a short-cut that you can use for creating questions with five answers (strongly disagree, disagree, neither agree or disagree, agree and strongly agree). This is for use in those kinds of questionnaires where you wish to make a statement and get the user's response. You can edit the answers and everything else about the question once you have created it; there is nothing sacrosanct about the standard wording. Again you can change the marking type (using F2) if you want to.

6.4   Numeric questions

6.4.1   Numbers the student can enter

In a numeric question, the student answers by entering a number.

```
 ┌────────────────────────────────────────────────────────────┐
 │  How many states are there in the United States of America ? │
 │                                                              │
 │                                                              │
 │                                                              │
 │                                                              │
 │                                                              │
 │                                             Units for answer │
 │  All numbers                                ┌──────────────┐ │
 │  allowed ? │ N │  Answers must │ 1 │ to │ 100 │             │ │
 │              ‾‾‾       be from                └──────────────┘ │
 │                                                   Score if   │
 │  Right/wrong scores      Correct answer           inexact    │
 │  ┌───┬───┐             ┌────┐   ┌───┐           ┌───┐        │
 │  │ 5 │ 0 │             │ 50 │ ± │ 2 │           │ 1 │        │
 │  └───┴───┘             └────┘   └───┘           └───┘        │
 │                                                              │
 │  Reason │ Alaska is the 49th & Hawaii is the 50th.         │ │
 └────────────────────────────────────────────────────────────┘
```

Figure 6.3   Main area of screen while editing a number
                  question

**All numbers
allowed ?**

You can let the student enter any number (including negative
and fractional ones) or you can specify a range of numbers
within which the computer will accept a number as the answer.
You do this by setting 'Y' or 'N' in the box marked **All num-
bers allowed ?**.

If you set 'N', then you must fill in the minimum (**Answers
must be from**) and maximum (**to**) boxes. The minimum value
can only be 0 or 1. The maximum value can be from 1 to
9999. Then the computer will not let the student enter an
answer outside this range. Thus in the above example, the
student is allowed to enter any number from 1 to 100.

If you set 'Y', then the computer will accept all answers from
the student. The computer will beep if students try to enter
numbers that are out of its maximum range, though this is
unlikely to happen very often. The computer range includes
whole numbers up to 99999999 and numbers with up to 6 deci-

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mal places. The precise definition of the numbers students can enter is as follows.

- If the answer is negative, a minus sign;

- Up to 8 digits before the decimal point;

- The decimal point (as a dot or comma);

- Up to 6 digits after the decimal point;

- An exponent of up to 2 digits (eg E34 or E-13).

Thus if all answers are allowed, then example numbers students can enter include "3", "-4.567", or "3.141593E45". Note that using commas to delimit thousands, eg "1,000,000" does not work because a comma is interpreted as a decimal point; you might need to warn students of this.

Units for answer

You can optionally define what the answer means by filling in the *Units for answer* box. For example, if the answer is expected as a number of metres, you might put "metres" in the units box. If you set a unit, it is used on presenting the question to the student and in reporting. However you can leave the box blank if units are inappropriate or unnecessary.

6.4.2   Computer marking of numeric questions

Figure 6.3 shows an example marked numeric question. At the top of the screen is the question wording, and then follows a description of what kinds of answers are allowed, and what the right answer is.

If the question is marked you must define a correct answer, which can be any number within the range of numbers the

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student is allowed to enter. You also enter scores for right and wrong, and if appropriate a hint or reason.

±

To the right of the correct answer box is another box preceded by a ± sign. This is the offset box from the correct answer. If this box is set to zero, then the student must enter the number exactly to be right (though he/she can enter it with different characters: eg 0.1, .100 and .1 are all the same).

Score if inexact

If the offset box is not set to zero then another box appears entitled **Score if inexact**. You can set this box to be any score not less than the wrong score and not greater than the right score. If the student enters a number that is within the offset from the correct answer, then he/she will get this score. If this score is the same as the right score, then the computer will consider the answer right. Otherwise it will consider the answer "right but inexact" or "wrong but close".

The example in Figure 6.3 above gives a score of 5 points for getting the answer right (50), 1 point for getting it nearly right (49 or 51), and zero points otherwise. To define a range of answers that are right, you set the **Score if inexact** box to be the same as the score for being right. The computer then treats any answer within the range as being right.

If you use fractional numbers, then because of the difference between the computer's internal representation and our decimal interpretation, there is a small chance of rounding errors. It is possible, for example, in unlikely circumstances, that if a student's answer is outside the right range by 0.000001, then the answer could get marked right. You are very unlikely to run into such rounding errors.

6.5   Word answer questions

In word answer questions the student enters the answer as a single word. If you can restrict the correct and possible answers to a single word, this is one of the most useful question types, as it is easy to set and mark, yet open-ended. Note that this question requires a word (a sequence of 20 characters of any sort but not spaces) as its answer. A word need not just have letters in it. These are examples of legal Question Mark words: "Washington", "x+y-z" and "Ross-on-Wye"; these are illegal words: "New York", "x + y" and "Supercalafragalistic-expialidotious" (too long!).

If the question is not marked, then all you define is the question wording.

6.5.1   Computer marking of word answer questions

You can define up to six correct answers, each of which must be a word. You also define a right and wrong score, and you may define a hint or reason. To be right the student's answer must be the same as one of the correct answers; if it is wrong the first correct answer you define (on the top left) will be the one given as correct. Figure 6.4 shows an example marked question.

Ignore letter case

This box defines whether letter case is significant. If the box is 'Y', then upper and lower case letters are considered as if they were the same. If it is 'N' then if a letter is different case, then it is different. (Thus in the example above, a student answer of "del" would still be right.) You should think carefully before deciding not to ignore letter case, as inexperienced computer users often have problems with using the Shift key to set letter case.

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Figure 6.4 Main screen area while editing a word answer
question

***Mis-spelling
counts ?***

There is an additional box on the screen for whether mis-spell-
ings will be searched for. Question Mark defines a mis-spell-
ing (for any student answer of two characters or greater) as
being a word which is the same as one of the correct answers
except that one (and no more than one) of the following is the
case:

● two adjacent characters are exchanged (eg comptuer for
computer);

● one character is wrong (eg quertion for question);

● there is one character left out (eg scedule for schedule);

● there is one extra character (eg antellope for antelope).

If more than one is the case (eg atnellope for antelope), the
answer is counted as not mis-spelt but wrong. If you let the

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computer search for mis-spellings you have to be careful, as the computer just blindly follows the above rules.

Mis-spelt score

If you enter 'N' for mis-spellings, then all mis-spelt answers are wrong. If you enter 'Y', then another box appears for the mis-spelt score. You can put any score not greater than the right score and not less than the wrong score in this box. If the student mis-spells a word, he/she will get this score, and be told that he/she has mis-spelt the right answer, and be given the correct spelling.

6.6   Fill in blanks questions

6.6.1   How to define the gaps to be filled in

In fill in blanks questions, you leave one or more gaps in your question wording, and the student answers the question by filling in the gaps.

You can define from one to six gaps by filling in the **No. of gaps** box. Having just one gap is the simplest way to use this question type, and is the best way to start using it.

You define the size and position of each gap by putting a row of dash symbols for each gap in the question wording. (A dash is '-': the key to the right of zero and left of the equals sign on many computers; do not by mistake use the underline character.) Gaps may not extend across two lines of the question wording.

The shortest gap is just one dash symbol, but single dash symbols only count as gaps if separated from text with spaces, to avoid confusion with hyphens. You cannot use a minus or

dash sign in the question wording except to define a gap, unless it is adjacent to another character. (You can use Alt-255 as the adjacent character if necessary - see section 5.1.3.)

The maximum size of gaps depends on the number of gaps there are, as follows.

- If there is 1 gap, it can be up to 36 dashes long.

- If there are 2 gaps, each gap can be up to 18 dashes long.

- If there are 3 gaps, each gap can be up to 12 dashes long.

- If there are 4, 5 or 6 gaps, each gap can be up to 6 dashes long.

When answering the question, the student may enter as many characters as there are dashes in the gap. If you want to give the student a hint as to the length of the answer, you can put exactly the right amount of dashes in; otherwise you can leave more and not help.

If you get confused about where the gaps are, press F5 to try out the question, and see what is happening. If the computer won't let you proceed with pressing F5 because you have defined the gaps wrong, remember that you must define as many gaps as you have specified. You cannot use the dash symbol elsewhere in your question wording.

6.6.2   Computer marking of fill in blanks questions

If the question is marked, you define a score for right and a score for wrong, and may define a hint or reason in the usual way. Figure 6.5 shows an example question.

```
┌──────────────────────────────────────────────────────────┐
│ ┌────────────────────────────────────────────────────┐   │
│ │  The ······· city of the USA is Washington DC not ··· ····. │
│ │                                                    │   │
│ │                                                    │   │
│ └────────────────────────────────────────────────────┘   │
│  Use dashes to set gaps above. Put up to 6 correct answers for each gap below. │
│  ┌───────────────────────────────┐ ┌──────────────────────┐
│  No. of  ───      Ignore          │ capital    New      York │
│  gaps    3      letter case ? │ N │ Capital               │
│                                                           │
│  Right/wrong scores    Score per gap                      │
│  ┌────┬────┐                ┌───┐                         │
│  │ 10 │ -1 │  Stop same  N  │ 2 │                         │
│  └────┴────┘  answers ?─────┘   └                         │
│                                                           │
│  Hint ┌──────────────────────────────────────────────┐   │
│       └──────────────────────────────────────────────┘   │
└──────────────────────────────────────────────────────────┘
```

Figure 6.5   Main screen area while editing a fill in blanks
                    question

Ignore letter case?

You must set the **Ignore letter case?** box. In the example above, this is set to 'N', so that letter case does matter. If the student types "new york" or "NEW YORK" instead of "New York", the answer will be wrong. You should only make letter case significant if you are sure that your students will be able to enter answers in the correct letter case.

Correct answers

You can define up to six correct answers for each gap (and you must define one). Each answer must fit within the gap you have defined; the six possible answers for each gap are in a column together (so in the example "Capital" and "capital" are the correct answers for the first gap).

On marking the question, Question Mark compares the student answer for each gap exactly with each of your correct answers. Apart from the computer adjusting for leading or trailing spaces, the student answer must be the same, character for character, as one of the correct ones for the student to be

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right. If a correct answer is told to the student, the one that is told is the first one (nearest the top) that you define.

Marking is done independently for each gap. Thus, the student's answer for the first gap is compared with all the answers for the first gap, and the student's answer for the second gap with all the answers for the second gap etc. This means that you cannot link the correct answers for the two gaps or make the correct answer for one gap depend on another (but see *Stop same answers?* below). If you need to do this, use the free format question type instead.

If the student gets all the gaps right, he/she gets the right score. If none of them are right, he/she gets the wrong score.

6.6.3   Marking in multiple gap questions

There are three additional advanced things you can do in marked multiple gap questions.

Score per gap

In questions with more than one gap, you can give partial marks for getting some but not all gaps right. In such a case the student gets the wrong score plus the number in the *Score per gap* box for each gap that is right. In the example in the Figure, if the student gets no gaps right, he/she loses 1 point; if all three gaps are right, he/she gets 10 points; and if 2 gaps are right, he/she gets 2 points per gap less 1, making it 3 points. You are not allowed to set the score per gap so that the score for getting some gaps right is more than the score for getting all of them right.

Stop same answers?

Sometimes you may wish to ask a multiple gap question where you do not mind which order the answers are in. For example, your question might be "The United States borders on two

oceans, the -------- and the --------.", with correct answers the Atlantic and the Pacific in either order.

The obvious way to do this is to put "Atlantic" and "Pacific" as the correct answers to both gaps. Then whichever order the student answers in, naming both oceans will be marked right. However if you do this, then the student will still be marked right if he/she puts "Atlantic" in each gap, because "Atlantic" is a possible correct answer to both gaps.

To avoid this, you can set the *Stop same answers?* box. If this is set to 'Y', then the software will consider a student answer wrong if it is the same as another non-blank answer entered. You should set this box if you want to prevent the student being able to give the same answer to more than one gap, and leave it at 'N' if this is not an issue.

If you do this, you should put as the *first* correct answer for each gap what you want the student to see as the right answer. In tests where the student sees the right answer to the question, it is the *first* correct answer for each gap that he/she sees.

Figure 6.6 shows the editing screen for the question described. The correct answers have been put in a different order for the two gaps. This means that the student is told the right answer is "Atlantic Pacific", but that an answer in either order is allowed.

You can also ask a question like this as a free format question, but one of the advantages of asking it with the fill-in-blanks question type is that you can get partial marking, (eg 1 point for getting one gap or 2 points for getting both gaps), something that is not possible in free format questions.

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```
┌──────────────────────────────────────────────────────────────────┐
│ ┌──────────────────────────────────────────────────────────────┐ │
│ │ The United States border  on two oceans, the - --   - and the --   ---. │ │
│ │                                                                │ │
│ │                                                                │ │
│ │                                                                │ │
│ └──────────────────────────────────────────────────────────────┘ │
│ Use dashes to set gaps above. Put up to 6 correct answers for each gap below. │
│                                          ┌───────────┬───────────┐ │
│ No. of  ┌───┐      Ignore      ┌───┐     │Atlantic   │Pacific    │ │
│ gaps    │ 2 │   letter case ?  │ Y │     │Pacific    │Atlantic   │ │
│         └───┘                  └───┘     │           │           │ │
│ Right/wrong scores     Score per gap     │           │           │ │
│ ┌───┬───┐                      ┌───┐     │           │           │ │
│ │ 2 │ 0 │ Stop same│ Y │       │ 1 │     │           │           │ │
│ └───┴───┘ answers ?└───┘       └───┘     └───────────┴───────────┘ │
│ Reason  The Atlantic ocean is on the east, and the Pacific on the west. │
└──────────────────────────────────────────────────────────────────┘
```

Figure 6.6 Example of question with multiple gaps with the
same answer allowed in each

Only answering some gaps

The last advanced feature in this question type is that some-
times you might want to ask a question with multiple gaps,
where you want the student to fill in some (but not all) gaps.
For example, in a book-keeping question, there might be a
number of possible places to put a figure in as answer, and
part of the answer is knowing which gap to fill in.

Question Mark requires you to set a right answer for each gap,
but if you want the right answer to be that the student leaves
this gap empty and does not answer it, then you should put a
series of dashes (eg "------") as the right answer. This tells
Question Mark that the right answer for this gap is for it to be
unanswered.

6.7   Free format questions

6.7.1   Unmarked free format questions

Free format questions allow the student to enter any answer, as one or several lines.

Single line answers are simpler for the student to enter, and also take up less memory in the test delivery software, so you should use them unless you need multiple line answers. Each line in a student answer can be up to 75 characters, and the multiple line answer uses 6 lines (allowing up to 450 characters to be entered).

For unmarked free format questions, all you define is the question wording, and whether you want the student to be able to answer in one line of text or in several. Figure 6.7 shows an example.

```
Please enter in your own words what you feel about the computer
exercise you have just done.

Was it useful to you?
Would you recommend others to do it?
Are there any changes that you would like to see made to it?


Answers can be     ┌───┐
several lines ?     │ Y │
                    └───┘

       Question is not marked.
```

Figure 6.7 Main screen area while editing an unmarked free format question

6.7.2   Marked free format questions

Many free format questions will be impossible for the computer to mark. For the computer to be able to mark the question, you need to define exactly what answers are right and what answers are not. For a free format question, where the student can type almost anything, it is very hard to think of all the possibilities, and to tell the computer what to do about them.

Free format computer marking is much more complicated than anything else in Question Mark. You should not try to use it until you have become familiar with the software. Even then, setting good free format questions is difficult and time consuming.

In a marked question, the first page has the question wording, the right and wrong scores, and the hint or reason, in a similar way to other question types. You can also define whether the student answer is to have single or multiple lines; you should normally set this to just a single line, as it is very hard to use Question Mark to reliably mark multiple line answers.

The second page (reached by PgDn) holds the definition of the correct answer. There are three boxes.

Formula defining correct answer

This is a formula to define the correct answer, entered and edited in the same way as the text in the question wording box. The formula is constructed and works as described in section 6.7.3 below. (The simplest formula is just the correct answer enclosed in quotation marks.) If the student's answer fits the formula, the answer is marked right; if it does not, it is marked wrong. There are no intermediates.

Example correct answer

This box is used to show an example correct answer which can be told to the student, when the answer is wrong. The example

correct answer is limited to one line (and must fit in the formula defining the correct answer). You can leave this box blank if you do not want to tell a correct answer to the student, or if the correct answer will not fit in the box.

Ignore letter
case ?

If this box is 'Y' then letter case (whether the student answer is in capitals or lower case) is completely ignored for marking purposes. If it is 'N' then letter case is significant - eg "France" is different to "france". You should normally set this box to 'Y', as your students may not be very good at using the computer keyboard to shift letter case.

6.7.3   The free format formula

This is one of the more complicated parts of Question Mark. Read it only once you have mastered the simpler parts.

The free format formula defines a simple or complicated condition. If the student's answer fits the condition, the answer is right; otherwise it is wrong. The formula is built around match strings against which the student's answer is matched.

A match string is any sequence of characters surrounded by either single or double quotation marks (eg "tree-top" but not "goodbye'). Question Mark calls a match string right if it can find the string in the student's answer and wrong if it cannot. It searches throughout the student's answer and tries to find an exact match anywhere. Thus "bat" will be found in student answers of "bat", "battle" and "acrobat" but not in "Abba tells me this".

There are two wild characters you can put inside match strings. A question mark ('?') matches with any one character in the answer except space, and a star (' * ') matches with zero, one or more characters of any type in the answer. Thus "b?et"

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matches with student answers of "beat" and "bret" but not with "bleat". And "car * " matches with student answers of "car", "carpet" and "carry on". Wild characters are especially useful to let you allow mis-spellings.

Spaces in match strings are also special in that they match with one or more spaces in the student answer, or with the start or end of the answer. Therefore " car " with a space before and after the word matches with student answers of "car", and "car door" but not with "carpet" or "scar". But "car " without a space before the word, would match with an answer of "scar".

The simplest free format formula is a single match string. If the student answer matches, it is right; if it does not, it is wrong. For example, if you define your free format formula as " green ", then if the student's answer contains the word green, it will be judged right and otherwise it will be judged wrong.

You can however build up match strings into complicated expressions using brackets, and the operators AND (or & for short), NOT and OR, with the following meanings.

- "A" AND "B" means both strings must match (be in the student answer) to be right. Either one can be first.

- "A" OR "B" means one or other or both strings must match.

- NOT "A" means the string must not match.

- "A" + "B" means that the answer must contain the first string, then one or more spaces, and then the second string in that order.

You can build up complicated expressions combining these operators. If so you should use brackets to define which operators take effect first, eg to show whether "A" AND "B" OR

"C" means ("A" AND "B") OR "C" or "A" AND ("B" OR "C"). If you leave out brackets, then NOT always binds the thing closest to it, AND and OR are next strong, and + is weakest. You cannot put a + operator within brackets.

It is quite difficult to frame free format formulae; you want to catch all possible right student answers, perhaps allowing some leeway and tolerating minor mistakes, but you want to catch all wrong ones. The best way to learn to do it is by practising. Here are three examples to help you.

6.7.4   Traffic lights example

Suppose your question is what colour light on a traffic lights follows orange on its own. In the UK, the correct answer to this question is red (on its own).

The simplest formula would be " red ". This will mark as right any student answer with the word red in it. However if a student typed "red and orange", it would still be marked right, which is not acceptable.

A better formula would be " red " AND NOT ("orange" OR "green" OR "amber"). This will spot a combination of colours, and mark it wrong.

This is a common way to define a formula - make it the right answer and put in a combination of obvious wrong answers that should not be allowed. The formula is not perfect because the student could still type in something silly like "any colour but red", and be marked right. There is very little that can be done about possibilities like this - except to suggest that all computer marking of free format questions is checked by hand later.

6.7.5   Which country example

Suppose your question is to name any country in the world
other than the USA which uses the dollar as its currency. A
suitable formula might be something along the lines of:
" Canada " OR " Australia " OR " Singapore " OR "
Trinidad * Tobago ".

There should be many more countries on this list, but that does
not change the principle. The use of the star within Trinidad
and Tobago is one way of coping with the fact that people
might phrase this in different ways (eg Trinidad & Tobago),
and the star should catch all of them.

6.7.6   Liking reading example

Suppose you are asking a question where you want the student
to translate into English a statement that means "John likes
reading magazines". Depending on the exact meaning of the
phrase in the foreign language, you might want to allow a fair
amount of leeway in the way this could be translated.

A possible formula might be:
" John " +
(" likes " OR " enjoys " OR " loves " OR " adores " OR
  " really likes ") +
(" reading " OR " perusing " OR " studying ") +
(" magazines " OR " journals ").

This gives 30 different possible sentences with different combi-
nations of the words, all of which are right. The use of the '+'
symbol means that the text has to be in the order given. Again
this formula is not perfect, but it does a reasonable job most of
the time.

With all free format questions, if the results of the marking are

important, you are advised to check the student's answers by hand before taking any important decisions as a result of the computer marking.

6.8   Matching/ranking questions

In these questions, you define from 2 to 6 text answers, and the student has to assign numbers to them. You can use this as a ranking question, where the numbers represent an ordering, or as a matching question where the meaning of the numbers is defined in the question wording. This is a very flexible question type, which you can use to get a lot of information from one answer.

Figure 6.8 shows an example of a matching question. In the example, the student has to match capital cities to their countries. There are four text answers and the student is allowed to assign numbers from 1 to 9 to each of them. The question is special marked, and gets one point for each correct match, and no points if no matches are right. There is no hint or reason message defined.

The question wording and reason boxes are like every other question type. The other boxes are used as follows.

No. of answer

This is the number of text answers that are to be matched against or ranked. It can be from 2 to 6.

Max match

Students assign numbers to the answers. The numbers they are allowed to assign are from 1 to whatever is in this box (which can be up to 9). For a matching question, you will put here the number of possible matches. For a ranking question, you

would normally put here the same number as the number of answers.

Figure 6.8 Main screen area while editing a matching/ranking
          question

**Shuffle
answers**

This is whether the computer is to randomly shuffle the order
of the answers. You should normally set this to 'Y', unless
you want a particular order to be used.

Answers

These are the text answers, and you have 50 characters for
each of them. They cannot be blank.

Correct

In a marked question, these are the right answers the student
should put in. You can put '0' as a correct answer; this means
that no match (not assigning an answer) is the correct thing to
do.

**Points per
match**

This box only appears if the question is special marked. If the
question is marked right/wrong, then you get a score for being
right (getting all the matches correct) and score for being
wrong in the usual way. In special marking, the student gets
the number of points in this box for each match that is right
(except where no match is right), and zero marks if none are
right.

6.9   Multiple response questions

In multiple response questions, the student is offered a number
(from 2 to 12) of answers. He/she can select or not select each
answer. Figure 6.9 shows an example question.

Figure 6.9 Main screen area while editing a multiple response
question

If you have up to 6 answers, then you have 50 characters for
each. If you have more than 7 answers (as in the example),

then you have 20 characters to fit each answer in. When creating the question, you define the number of answers you want by putting the number in the **No. of answers** box, and then fill in the answer text. Whether or not the arrangement of the answers is shuffled randomly depends on whether you set the **Shuffle answers** box.

Multiple response questions can be marked right/wrong or with varying point scores (special marking). You choose which when creating the question, and can change it with the F2 key.

Right/wrong marking is simplest, but means that you cannot give marks for the student being partially right. Here you define whether each answer is right or wrong. The student will only be marked right if the answer agrees with yours in all selections.

For special marking you assign a score to each answer. The student's score is the sum of all answers selected, or zero if no answers are selected. You should assign positive scores to good answers and negative scores to bad ones (so that if the student selects all answers he/she will be penalized), with answers only being given a score of zero for ones that are neither good nor bad. The maximum possible score for a question may not exceed plus or minus 99.

6.10 Logical questions

In logical questions, the student is shown a number (from 1 to 6) of answers or statements. For each statement, he/she can assign True or Yes, or can assign False or No, or else can leave the statement unanswered.

Logical questions have similarities to multiple choice, multiple

response and matching questions, but are different to each of the other types. In comparison to the other question types:

- A logical question with just one statement is very similar to a yes/no or true/false multiple choice question, and you can use it as such if you prefer the way it works to multiple choice. With more that one statement, the question is similar to several multiple choice questions all shown on one screen.

- In multiple response questions, all answers that are not selected "on" are automatically selected "off". However in logical questions, the student has to assign an answer "on" or "off", and the default is to leave it unassigned. This gives a 3-way choice rather than a 2-way one.

- As in a matching question, the student assigns something to a series of answers, but instead of assigning numbers, he/she assigns logical entities: yes/no or true/false.

The logical question type is created in a similar way to a multiple choice question. You can have up to 6 one-line answers or up to 4 two-line ones, and these are spread out on two pages.

Figure 6.10 shows the editing screens for an example question. The first screen shows the question wording, and the scoring and hint/reason information. The second screen shows the statements and what the correct answer is for them. You move between the screens by pressing PgUp and PgDn.

The question wording and hint/reason boxes are as in every other question type. The other boxes work as follows.

| **No. of answers** | This can be from 1 to 6, and defines the number of statements to be used. |

```
┌───────────────────────────────────────────────────────────┐
│ ┌─────────────────────────────────────────────────────┐   │
│ │ This is an example of a logical question.            │   │
│ │                                                     │   │
│ │ Which of the following statements are true?         │   │
│ │                                                     │   │
│ └─────────────────────────────────────────────────────┘   │
│ No. of    Shuffle        Use two lines   Points for each  Points lost for │
│ answers   answers?       for answers ?   right answer     each wrong answer│
│  ┌───┐     ┌───┐          ┌───┐           ┌───┐            ┌───┐    │
│  │ 4 │     │ Y │          │ N │           │ 2 │            │ 1 │    │
│  └───┘     └───┘          └───┘           └───┘            └───┘    │
│                                                           │
│ Statements are displayed on second page. Press PgDn to see. │
│                                                           │
│ Reason ┌──────────────────────────────────────────────┐  │
│        └──────────────────────────────────────────────┘  │
└───────────────────────────────────────────────────────────┘
```

```
┌───────────────────────────────────────────────────────────┐
│ Statements                                        True ?   │
│ ┌─────────────────────────────────────────────┐   ┌───┐   │
│ │ Brussels is the capital city of Belgium.     │   │ Y │   │
│ │ Brussels is the capital city of the Netherlands. │ N │   │
│ │ Brussels is the headquarters of Question Mark Computing. │ N │ │
│ │ Brussels is the headquarters city of the European Community. │ Y │ │
│ └─────────────────────────────────────────────┘   └───┘   │
│                                                           │
│                          For question wording press PgUp. │
│                                                           │
│       Ask students whether statements  ┌───┐              │
│       are True/False (not Yes/No) ?     │ Y │              │
│                                         └───┘              │
└───────────────────────────────────────────────────────────┘
```

Figure 6.10   Example screens when editing a logical
                   question

Shuffle answers?

Like in the other question types, this is whether the statements
are presented in a random order, or whether they are pres-
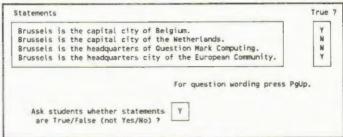ented in the order defined.

Use two lines for answers?

For up to 4 options, you can use two lines of text for each
statement if you prefer. Each line of text can be up to 60
characters long.

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Statements

These are the statements or answers to be shown to the student.

True?

Put 'Y' by each statement where the right answer is to choose True or Yes, and 'N' where it is to choose False or No.

Ask students whether statements are True /False (not Yes/No)?

There are two ways in which a logical question can be presented to the student. Either the student can be asked whether each statement is True or False, or else the student can be asked to assign Yes or No to each statement. The way the question and scoring works is the same for each method. To define which method is used, you set this box.

If a logical question is marked, it can either be marked right/wrong or special marked.

Right/wrong scores

If you choose right/wrong marking, then the student must assign the correct answer to each statement to get the score for being right. Otherwise they get the score for being wrong. Thus with right/wrong marking, if a student leaves a statement unanswered, or if any answers are not correct, the student's answer is considered wrong.

Points for each right answer

If you choose special marking, then each statement is marked independently, which in many cases will be a fairer method of marking, as a student can get some marks for being partially right. You define the marking by setting the **Points for each right answer** box, which is the points gained for getting each answer right.

Points lost for each wrong answer

You can also set the *Points lost for each wrong answer* box. If this is zero, then students are not penalised for getting an answer wrong, but if you set it, then this number of points are subtracted from the score for the question for getting each answer wrong. A statement that is left unanswered counts as neither right not wrong.

Thus, in the example in Figure 6.10, the student gets 2 points for each answer that is right, and loses 1 point for each answer that is wrong. Thus, the possible score for the question ranges from -4 to +8. If a student chooses False for the first three statements, and leaves the last one unanswered, then the score will be 3 (4 points for getting two right, less 1 point for getting one wrong).

With these various options, you have quite a lot of choice as to how logical questions are marked. You should choose the scoring method that fits in with your assessment philosophy, and you should try out questions to be sure that you are happy with the scoring generated.

6.11   Explanations

Explanation "questions" have the wording of a question, but do not require the student to answer anything. They are simply a page of information presented to the student.

You can use explanations to give information to the student before or during a test. You can even create presentations or tutorials with Question Mark using mostly or solely explanations; in this way you can use Question Mark for purposes quite different to its main application in assessments and tests.

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A very valuable use of an explanation is that if a question is too large to fit on one screen, you can divide it into one or more initial explanations, followed by the question itself. In this way you can fit as long a question as you need into the system.

In an explanation, you have two boxes the size of the usual question wording to fill in, and thus you can define 14 lines of wording, each with 72 characters in it. If you choose to draw boxes round question wordings (see Chapter 7), the two pieces of text are displayed separately; otherwise they are displayed flowing on from one to the other.

As with all questions, you can also include graphics with explanations - see Chapter 7 for information on this. Explanation questions are not marked and always receive a score of zero.

Time limit ?

Normally, an explanation is shown to the student until he/she presses the space bar (or clicks on **Go on**) to move on to continue. However you can set a time limit for an explanation (from 1 to 999 seconds). If you do this, then the explanation is only shown until the student presses the space bar or the time limit runs out (whichever is first). You can use this facility to make "rolling" presentations, which continue independent of the user's actions. (It is best not to combine this feature with letting students go back and change their answers.)

Questions to skip

You can branch in the same way as from other unmarked questions. (Remember that if you do not see the **Questions to skip** box on the screen, then it means that you have not set branching to be on - see section 5.6.2). If you are randomizing the order of questions, you may want to make explanations golden (fixed in the same place) as otherwise they may not make sense.

On any question following an explanation question, the student can return to the explanation by pressing the PgUp key or clicking on the **Go back** button. Thus if you have a sequence of explanations in a row, the student can easily cycle back and forth between the explanations using PgUp/PgDn or clicking with the mouse. If you have an explanation followed by a "real" question, then the student can go back and look at the explanation while looking at the question. (This going backwards facility is only available in tests without randomisation and branching.)


```
                              LICENCES

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the main software by one person at a time, and also to use the test
delivery software to an unlimited extent on one site.


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can buy a site licence for unlimited use of the software on one
site or a distribution licence to let you use the test delivery
software to deliver tests at other places.

Contact us or your dealer for a price list. (There are attractive
educational discounts on licences.)


Time limit ?  [ Y ]   Time in seconds   20   Questions to skip  [ 0 ]
```
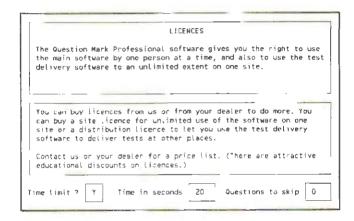
Figure 6.11   Main screen area while editing an explanation

7.   Adding graphics to tests

7.1   Graphics overview

7.1.1   General principles

This Chapter describes how you can add graphics to tests. With Question Mark, you can include pictures, charts, maps, diagrams, scanned photographs or line drawings, screen snapshots of other programs, and almost any kind of static graphics within your tests.

Graphics used in Question Mark can be in colour or monochrome. Whereas on paper, you can rarely afford to print a test in colour, on a computer you can easily use colour. Colour graphics can be very vivid and effective in some kind of assessments.

In some instances, graphics are essential in order to communicate the question. As a simple example, you could have a question asking "What kind of animal is this?", and include as a graphic a picture of a horse. Such a question would be impossible without a graphic. In many real-life subject areas, you *need* to use graphics in questions to be able to properly assess your students.

Graphics can also liven up material and make it look more exciting. Depending on the environment in which you are working, you can use graphics to make your material look more professional, to give students feedback and motivation, or just to stamp your company's logo on material.

You can also use graphics to present text in ways that you cannot ordinarily do, for example large size text, or text with mathematical symbols. To do this, you create the text in a

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word-processor or other program, and then snapshot it and treat it like a graphic.

Creating graphical tests takes more time than creating text-only tests. Graphics tests will only run on PCs with a graphics display, and usually run slower than text-only tests do. You will also require more disk space to store the tests.

However, most modern PCs can easily display and store Question Mark graphics. And adding graphics to tests is not difficult. Using graphics can really add value to assessments, tutorials and presentations created with Question Mark.

7.1.2   Graphics files

Each graphic used in Question Mark is stored in its own file on disk. The size of a file varies with the size and number of colours of the picture. Small graphic files might take up just a few K of disk space. Large colour graphics files can take as much as 50K or 100K each.

The main graphics file format used by Question Mark is the .PCX file format. This is a standard file format, which many other programs also support.

Other graphics file formats are used on PCs, including .BMP (used within Windows) and .TIF (used by scanners). To use these files, you will need to convert them to .PCX format. You can do this, either using the Question Mark screen-snapper to grab them off the screen into a .PCX file, or using graphics conversion or other programs.

Question Mark supports graphics that are either 2 colours (black and white) or 16 colours. Graphics are measured in screen pixels; within Question Mark, they can be any size up to 640 pixels across and 480 pixels down. This is the size of

the largest screen display on a VGA computer, and Question Mark does not support larger pictures.

The .PCX file format supports only graphics pictures. Question Mark also supports "text" graphics, parts of screens that have been snapshotted from a program running in text mode. These graphics are saved in a proprietary format, called .PCT.

Because the .PCX format is a standard one, it means that other people can read and display your graphics files in the format. If you need to prevent this for security reasons, Question Mark also supports a proprietary encrypted file format, the .QMG format. Within Question Mark, you can convert your .PCX files to and from .QMG, to give you some (limited) protection in distributing your material.

Graphics files are referenced within tests by name. For example, a question might say that it needs a graphic file called "APPLE". When delivering a test, the software will then look for a .PCX, .QMG or .PCT file called APPLE on the current directory. Question Mark tries to prevent you from having two files with the same name and different extension (eg APPLE.PCX and APPLE.PCT) in the same directory.

7.1.3   How graphics fit into tests

You can define the following graphics to be used with each question file.

- An optional background graphic to be used in every question and page.

- In each question, one or two foreground graphics to be displayed for that question (as well as or instead of the background graphic).

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- In the introduction screen, one or two foreground graphics to be displayed on the screen with the wording you have defined (as well as or instead of the background graphic).

- For the final screen, one or two foreground graphics for each score band. These are displayed on the final screen with the wording for that score band (as well as or instead of the background graphic).

Thus you can use up to three graphics for each screen within Question Mark. You can define a general background graphic to be used in the whole test, and one or two foreground graphics for each screen.

Each graphic is defined by a reference to a graphics file, usually a .PCX file. You position each picture on the page where you want it. Thus you can align two pictures on a page together, or fit a picture in so there is room for the question wording and the student answer.

You can have as many or as few graphics in a test as you want. You could have just one graphic somewhere in the test, or you could use hundreds of graphics. You can reference the same graphic many times in different questions, or you have a different graphic for each question. It's up to you.

When the test is delivered, the delivery software uses the question file together with the .PCX and other graphics files, and shows them to your students. At this stage, the graphics files and question files must be in the same directory, but you can access graphics files on different directories while creating tests.

7.1.4   Mechanics of using graphics

You need to create your graphics outside Question Mark. There are two ways of doing this.

- One way is to use the Question Mark screen-snapper, QMRES. With this, you can snapshot screens from almost any program, and save them as .PCX files. How to use the screen-snapper is described in Appendix A.

- The other way is to use another program that can save in .PCX format. Almost every PC graphics program can create .PCX files, including Harvard Graphics, PC Paintbrush, Lotus Freelance and Corel Draw. You can even use some versions of Windows Paintbrush, which is included with every copy of Windows. Many other PC programs will also allow you to save their results in .PCX format. You can also buy "clip art" in .PCX format.

Once you have created your .PCX files, you can use Question Mark to view them and cut them down to size to fit your questions. Section 7.2 describes how to do this.

For each question (and for the introduction and final screens) in the test, there is a graphics definition page. You define the graphics to be used in the question on this page. How you do this is described in section 7.3.

Section 7.4 describes editing the Display page, which includes defining the background graphic for the whole test. Lastly section 7.5 describes the Video page, and issues of getting the colours in your test looking good.

7.2   Viewing and amending graphics files

7.2.1   Running the graphics file viewer

Question Mark includes a graphics file viewer that lets you view, manage and cut down to size your .PCX graphics files.

To run the file viewer, you press F2 from the directory screen (the main screen where you see the list of question and answer files), and choose **Graphics** from the list of menu items. This runs the file viewer, and shows you a list of all the graphics files on one directory.

7.2.2   Viewing graphics files

On viewing graphics files, the display shows the graphic files on the directory in alphabetical order, with the following information for each graphic.

- the file name.

- the file extension (usually .PCX).

- the time and date the file was created, or last amended.

- the size of the file (in bytes).

- the number of colours in the picture (normally 2 or 16). Text graphics have **Text** written by them.

- the dimensions of the picture. If you have snapshotted a picture, this will be the screen size, usually 640x480; other pictures can have other sizes. Dimensions are presented as a horizontal size by a vertical size. This is in pixels, except for text graphics which are in characters.

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• the default display mode (200 line, 350 line or 480 line)
  that the picture will be displayed in. Section 7.2.6
  describes display modes in more detail.

As well as displaying graphic files, the screen also shows any
available directories. These are all the sub-directories of this
directory, and the parent directory if applicable. Directories are
shown at the end of the display, in lower case.

Figure 7.1 shows an example screen. In the Figure, there are
12 graphics files and 4 sub-directories - the parent and three
other ones.

File		Time	Date	File size	Colours	Dimensions	Mode
APPLE	.PCX	14:36	8.02.93	11478	2	320x240	480
CONCORDE	.PCX	14:33	8.02.93	16076	16	408x210	480
DOUANE	.PCX	16:50	25.03.93	16392	16	320x275	350
QMCLOGO	.PCX	17:16	3.09.91	12367	16	360x206	350
SNAP0010	.PCT	15:16	30.04.93	4128	Text	80x25	
SNAP0011	.PCT	12:58	3.05.93	4128	Text	80x25	
SNAP0019	.PCX	11:58	7.05.93	15020	16	640x480	480
TALK3	.PCX	13:40	21.11.91	19872	16	640x480	480
TALK3E	.PCX	15:50	22.11.91	16804	16	640x480	480
WHITE	.PCX	10:54	29.03.93	8016	16	640x350	480
WINDOWS	.PCX	14:36	8.02.93	11478	2	320x240	480
XWINDOWS	.PCX	17:20	18.02.93	5976	16	112x90	200
..			Directory				
examples			Directory				
old			Directory				
release			Directory				

Figure 7.1 Example screen while viewing graphics

You can select a current file with the mouse or arrow keys (or
with Home, End, PgUp or PgDn). If there are more files than
can fit on the display, you see some dots at the top or bottom
of the display, and you can scroll the display up or down with
the arrow, PgUp or PgDn keys.

You view a file by clicking on its name, or pressing Enter
when it is highlighted. This clears the screen, and displays the

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graphic, showing you what it looks like. You can press ESC or Space to return to the list of files.

If you want to view more than one file, you can view others without returning to the list of files and re-selecting. You can move to view the next graphic by clicking, or pressing Enter or PgDn. PgUp takes you to the previous graphic, Home to the first, and End to the last. You can also use a digit key to skip that number of files down the list. This allows you to easily view the files and see which ones you want to use or amend.

7.2.3   Changing the directory to view graphics files

From the list of graphics files, you can change the directory you are viewing by clicking on one of the directory names in the list. This will then show you the graphics files on the other directory.

To finish viewing graphics and return to the Question Mark Directory screen, press ESC or F10. When you come back to view graphics, you see files on the same directory that you were last viewing them on. Thus, the graphics file viewer remembers the directory you were last looking at graphics files on, and returns you there.

You can also change the directory for graphics files with the F3 key. This gives you a menu of three choices.

Home

Return to the home directory, the same one that the Directory screen shows question and answer files for.

Specify

Type in the directory you want to go to. For example, you

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could type in "A:" to look at graphics files in the A drive.

Reset

Stay on the same directory, but re-search for files. This is useful if you have changed floppy disk, or otherwise need to re-check for files.

7.2.4   Marking, copying and deleting graphics files

As in the rest of Question Mark, you can use F6 to copy, rename or delete the current file.

When viewing graphics files, you can mark a number of files. Then the operation you choose with F6 applies to all marked files. Using this facility lets you copy or delete a series of files with one command.

To mark one file, select it and use Space. Pressing Space also acts to unmark a marked file. Each marked file has a solid diamond symbol by its name at the left of the screen. To mark several files, you can use the *Mark* option after pressing F6 (see below).

The options available on graphics files after pressing F6 are as follows.

Delete

This deletes the current file, or if files are marked, then it deletes all marked files. You are asked to confirm that you do wish to delete the file(s).

Transfer

This copies the current file into another directory. If files are marked, it copies all marked files. You specify the directory to be used in the usual way.

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Encrypt

This converts the current file, or all marked files, into .QMG format (encrypting them). The encryption algorithm is a very simple one, but encrypting graphics gives some protection against people accessing graphics outside Question Mark.

FromQMG

This reverses the encryption process, restoring files as .PCX or .PCT from .QMG. Again it works for the current file, or if files are marked, then for all marked files.

Mark

This allows you to automatically mark some files, removing any existing marks. You can choose from four options.

- The *All* option marks all files.

- The *Needed* option looks at all question files on the current (Directory screen) directory and sees which graphics files they reference. All graphics files used in these tests are marked.

- The *Double* option is similar, but looks for all graphics files that are referenced by two or more question files. Thus it marks all files used in more than one test.

- The *Unused* option marks all files that are not referenced by any question file, ie that are not used in a test.

These various options are particularly useful if you want to see which graphics files are used in tests, so you can tidy them up, and remove unwanted files. They also help you avoid deleting or renaming files that are referenced in tests.

Unmark

This removes all marking, making no files marked.

Copy

This option allows you to duplicate the current file in the same directory. You are asked to enter a new name for the file. It only works on the current file.

Rename

This option allows you to rename the current file. You are asked to enter a new name for the file. It only works on the current file. You are not allowed to use a name already being used by another file, even if it has a different graphics extension.

7.2.5   Amending graphics files

Using F2, you can amend graphics files, cutting them down to size and making other alterations. The menu of options available depend on what type of graphics file is selected.

For a 16 colour graphic, you can *Cut* (cut down to size), *Fix* (fix the display mode), *Shrink* (reduce in size) and *Palette* (adjust the colour palette) of a picture. For a 2 colour graphic, you can *Cut*, *Fix* and *Shrink* the picture. For a text mode graphic, you can *Cut* the picture, use *Graphics* (convert it to graphics mode) or *Ascii* (convert it to an Ascii text file). These options are described in detail below.

Cut

When you choose *Cut*, you define a rectangular area of the screen that you want to become the new picture, and then re-save this part of the screen as a new file.

To start with, you see the picture displayed with a cursor near the top left for you to move around. This will usually be in the shape of an arrow, but if you do not have a mouse it will be a cross-hair. If your image is in text mode, it will be a block

cursor. If you cannot see the cross-hair cursor, use the '+' or '-' keys to change its colour.

The first step in cutting the picture is to move this cursor to where you want the top left of your rectangular area to be. Then press Enter or click with the mouse. The easiest way to move the cursor is with the mouse, but you can use the arrow keys, or PgUp and PgDn.

This position will be the top left point of the new picture. However, if you choose a position that is not at a character position, the computer rounds it to the nearest character position. If you accept a position, and want to change it, you can do this by pressing ESC, and re-choosing.

After choosing the top left point, the computer draws a box that you can then enlarge or reduce with the keyboard or mouse to define the full picture. This box starts as a tiny rectangle or as the last size you used. The part of the screen inside the box becomes the picture that is saved as the new picture. You enlarge (or reduce) the box using the keyboard or mouse to position the bottom right corner of the box where you want it. You either click with the mouse at the bottom right position, or use the arrow keys or PgUp and PgDn.

Sometimes the box can be difficult to see over the rest of the screen - for example it may be the same colour as the background of the screen. You can change the box colour by pressing the '+' (plus) or '-' (minus) keys; these cycle up and down among the available colours.

After you have chosen the area to cut, and clicked or pressed Enter on the box, you are asked if you want to save the picture to a file with a new name (**New**) or else to overwrite the old one (**Same**). Be careful about overwriting the old file, in case you have made a mistake with the cutting. It is normally safer to cut to a new file name.

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Fix

The *Fix* option lets you change the display mode that a picture is displayed in. See section 7.2.6 for a full description of display modes, and this command.

Shrink

If you snapshot a whole screen, it will typically be too large to fit in a question with space left for the question wording and student answer. The *Shrink* option reduces the image in size by half on each side, ie to one quarter of the screen size. If you need to shrink pictures by other ratios, you should use a specialist graphics package.

For some screens, shrinking produces a neat copy of the original. For others, important information is lost. The only way to find out is to try it.

On selecting *Shrink*, the shrunken picture is displayed on the screen, and you are asked to press Enter to save it, or ESC not to. You can choose *New* to save it to a new file, or *Same* to overwrite the old file.

Palette

This option changes the palette of colours used in the picture to the standard set (if the standard palette is not already being used). This will typically change the colours in the picture. You see the new picture on the screen, and press Enter to save the changed picture (overwriting the old one) and ESC to not save.

See section 7.5.1 for a description of how colour palettes work.

Graphics

This lets you convert a text .PCT file into a graphics .PCX file. The picture is displayed on the screen in graphics (EGA colour 640x350 mode), and you are asked to press Enter to save it, or ESC not to. You can choose *New* to save it to a

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new file, or **Same** to overwrite the old file. After saving, if you need to change its display mode, you can use the **Fix** option as normal.

The converted picture should look similar to the original, but there may be some changes. The .PCX file will take up more disk space than the .PCT file, and you should only convert files if you need to (eg you want to edit the graphic with an external editing program).

Ascii

This lets you convert a .PCT text file into an Ascii text file that a word-processor or other program will read. The colour information is not converted. This option lets you export your data to another format, if you need it outside Question Mark.

7.2.6   Display modes

Question Mark supports seven PC display modes. You can use whichever of them your pictures look best in, and your hardware can support.

In the following descriptions, CGA, MCGA, EGA and VGA are the names of display adaptor types on the PC. Most modern PCs are either VGA or Super VGA; Super VGA can do everything that VGA can do.

Text mode

This is the display mode used if you have no graphics in your tests. It is available on every PC, and is very fast. The only graphics that can be displayed in it are .PCT "text" graphics.

CGA

This mode has 640x200 resolution in 2 colours, black and white. It is available on CGA, EGA, MCGA and VGA computers.

Monochrome EGA

This mode has 640x350 resolution in 2 colours, black and white. It is available on EGA and VGA computers. It can be dangerous to use, because not all computers permit this display mode, even though they may be 100% compatible with the IBM PC in other respects.

Monochrome VGA

This mode has resolution 640x480 in 2 colours, black and white. It is available on MCGA and VGA computers.

Low-res EGA

This mode has resolution 640x200 in 16 colours. It is available on EGA and VGA computers.

EGA Colour

This mode has resolution 640x350 in 16 colours. It is available on EGA and VGA computers.

VGA Colour

This mode has resolution 640x480 in 16 colours. It is only available on VGA computers.

The differences between the graphics modes are the numbers of colours (2 and 16) and the vertical resolution (200, 350 and 480 lines).

Which display mode is to be used is stored in the graphics file. Pictures from other programs are normally presented by default in VGA Colour 640x480 mode. When you use a picture that has been snapshotted off the screen, Question Mark will display it in the same display mode it was in when you snapshotted it. Text .PCT files are always displayed in text mode.

You can change the display mode a .PCX graphics picture is

presented in with the *Fix* command (see section 7.2.5 above).
This lets you choose between 200, 350 and 480 line modes.
You can only choose to display a picture if it will fit. Thus for
example, a 350x350 picture cannot be displayed in 640x200
mode because it is too large.

The same picture looks different in different modes because the
horizontal size is fixed but the vertical size varies, and so the
aspect ratio changes. Changing the mode therefore squashes or
stretches the picture, which can be unappealing.

All pictures that are displayed on the same screen in Question
Mark need to be in the same display mode. However Question
Mark can display a monochrome picture over a colour picture
if they are the same resolution (200, 350 or 480 line mode).
You will sometimes need to change the modes of pictures to
display them together.

The two main graphics resolutions you are likely to want to use
are EGA or VGA Colour modes, ie 350 or 480 line modes.
The VGA mode gives you lots of room on the screen to put
graphics and wording and so may be the best. However
characters are larger in the EGA mode, and this can sometimes
be more pleasing. You also need to consider what kind of
computer you are delivering on when setting up graphics.

You can experiment with display modes, and choose the ones
that are best for your tests.

7.2.7   Problems with .PCX files

You should not have any problems using .PCX files created
with the Question Mark screen-snapper, QMRES. Question
Mark should be able to read any .PCX file created with this, or
any .PCX file amended with *Cut* or any of the other editing
programs.

However, from time to time, you may have difficulties with
.PCX files created by other programs.

The most common reason for problems is a .PCX file that is
too large or has too many colours. Question Mark will only
read a file if it has either 2 or 16 colours, if the horizontal
resolution is 640 pixels or less, *and* if the vertical resolution is
480 pixels or less. If you have a .PCX file that is different to
or larger than this, Question Mark will not be able to read or
amend it. The size and number of colours in a .PCX file is
shown on the graphics file display. You will need to use a
graphics editing program to amend these pictures before you
can use them with Question Mark.

Another possible problem area is with the colours of pictures
being different to what you expect. Refer to section 7.5.1.

Unfortunately there are many different versions of the .PCX
standard, and different programs interpret the standard in
different ways. Occasionally you may find a .PCX file created
by some program that Question Mark cannot read for this
reason.

All .PCX files created by Question Mark should be usable by
other programs, though occasionally you may find a
compatibility problem. The display mode set by Question Mark
using the *Fix* option will not be used outside Question Mark.

7.3   Editing graphics for a question or page

7.3.1   Reaching the graphics definition page

For each question in the test, there is a graphics definition page
that defines the graphics displayed for that question. There is

also a graphics definition page for the introduction screen, if you use one, and for each score band defined for the final screen for the test.

You can reach the graphics definition page in the following ways.

- Edit the question or screen, and then press Ctrl Enter.

- Edit the question or screen, and then press F2 and select *Graphics*.

- For questions only, press Ctrl Enter when the question is highlighted on the question display screen, or click on the graphics file name on this screen.

All these methods take you to the same editing screen, described below.

7.3.2   Editing the graphics definition page

Figure 7.2 shows an example graphics definition page. On this page, you can define one or two foreground graphics. You define a graphic by setting its file name and its position on the screen. You can also define on the graphics definition page whether some of the information set up in the Display page for the whole test (see section 7.4) is used on this screen.

Although you can type in graphic names manually, the easiest way to define which graphics are used is to press F8 to collect graphics interactively. Collecting is described in section 7.3.3 below.

Pressing F10 while editing the graphics definition page saves the data, and returns you to where you were before. You will only be allowed to do this if any graphic files referenced are

present on the current directory. Pressing F5 lets you try out
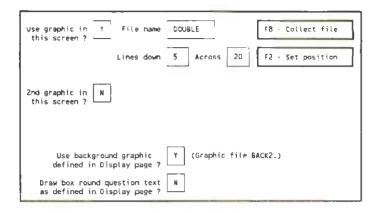the page, and pressing F9 or ESC quits without saving.

Figure 7.2 Main screen area while editing graphics definition
page

Pressing F2 gives you a menu of **Position** (set its position) and
Amend (edit the picture). Positioning the picture is described
below in section 7.3.4. Amending the picture gives you the
same options (**Cut, Fix** etc.) as when viewing graphics files in
section 7.2.5. (Note that changes made by **Cut** etc. to graphics
files on disk happen when you make them, and pressing F9
does not undo them.)

The meaning of the boxes on screen is as follows.

Use graphic in this screen?	Set this box to 'Y' if you want to define a foreground graphic on this screen. Set it to 'N' for no graphics.

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File name

This box defines the file name for the graphic to be used. You can either type in the file name here, or use the collecting facility to interactively choose the file (see section 7.3.3). You should enter just the file name, not the file extension.

Lines down

This box defines the number of character rows down the screen that the picture is displayed at. It can be from 0 to 20. A value of 0 means that the picture is displayed at the top of the screen; a value of 1 means one line down; and so on. If the bottom of a picture extends down below the status line, it is automatically cut off at that point.

You can set this box graphically using the positioning facility described in section 7.3.4.

Across

This box defines the number of character columns across the screen that the picture is displayed at. It can be from 0 to 79. A value of 0 means that the picture is displayed at the far left of the screen; a value of 1 means one character position right; and so on. If a picture extends off beyond the right of the screen, it is usually automatically moved left.

You can set this box graphically using the positioning facility described in section 7.3.4.

2nd graphic in this screen?

You set this box if you want to define a second foreground graphic for the page. Both graphics must be in the same display mode (ie 200, 350 or 480 line mode). If set to 'Y', then you will have additional *File name*, *Lines down* and *Across* boxes to set for the second graphic.

***Use
background
graphic
defined in
Display
page?***

If you have defined a background graphic in the Display page (see section 7.4), this box says whether you want to use it on this screen. You must ensure that the display mode of all graphics on one page is the same (using the ***Fix*** command or otherwise).

Thus for example in Figure 7.2, there is a graphic file BACK2 defined in the Display page, and it is to be used on this screen as well as the foreground picture DOUBLE. If no background graphic is defined, this box is not shown.

***Draw box
round
question text
as defined in
Display
page?***

If you have defined that a box is to be drawn round every question wording in the Display page (see section 7.4), then this box allows you to disable the box (use it or not use it) on this screen. It can sometimes be useful to have a box round question wordings, but not in screens where it would interfere with the graphics.

7.3.3   Collecting a picture

Question Mark lets you choose graphics interactively, as well as by typing their name in the ***File name*** box. To do this press F8 or click in the area marked ***F8 - Collect file***. You can collect either the main or second graphic; if there is any doubt as to which one you are trying to collect, the computer asks you to choose.

When you press F8 to collect, you see a list of files very similar to that in the graphics file viewer, described in section 7.2.2. You have all the capabilities of viewing and editing files except that the F6 key is not active, and so you cannot copy, rename, mark or delete files. (This is to prevent you from deleting or renaming a file that is referenced in another question.)

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To collect a graphic and use it in your question, you highlight it or view it, and press F8 again. The graphic selected can either be in this directory, or another one. If it is on another directory, it is copied from that directory to the current one, when you collect it.

After choosing a graphic file to collect by selecting it and pressing F8, you can choose three ways to collect it.

Cut

Choose **Cut** to change the graphic on disk before using it. You cut out a rectangular area in the picture, and save this to disk. You then set a position for the new picture and use it with your question.

Position

Set the position of the picture graphically, but do not amend the picture size.

Use

Choose **Use** to use the picture as it is with no changes, and with the default position (top left of the screen or whatever was previously set).

7.3.4   Graphically positioning a picture

You can manually position a picture by setting numerical values in the **Lines down** and **Across** boxes. However it is often easier to position a picture graphically when you can see the question wording and other question components on the screen.

You run the graphics positioning software by pressing F2 and choosing the **Position** option, by clicking on the area marked **F2 - Set position**, or after collecting a picture. This allows

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you to graphically set the position; in this way the computer fills in the numbers in the **Lines down** and **Across** boxes for you.

You then see the graphic, the question wording and the answer area for the student. You can move the graphic around the screen by clicking on the new top left position for the graphic, or by using the arrow keys and pressing Enter. The computer rounds all positions to the nearest character position.

● You can use Home to set the position of the top left corner of the picture to the same as last time (or to the top left of the screen if this is the first time you have positioned a picture).

● Similarly you can use End to set the position of the top right corner of the picture to where it was last time.

● Use Alt-R to centre the picture horizontally.

● When you are satisfied with the position, press F10. Press F9 or ESC to abandon positioning.

7.4   Editing the Display page

You reach the Display page in the same way as the other general pages described in Chapter 5. From the question display screen, press F2 and select **Display**, or else click on the name **Display** on the question wording screen.

The Display page allows you to tailor the way your test is displayed to suit you. You can define a background graphic to be used on every screen, and some other general information on how questions are displayed. Figure 7.3 shows an example

Display page.

When editing the Display page, the software gives you some
information about the graphics used in the test. In Figure 7.3,
the computer is saying that the question file references 5
graphics files and that a VGA display is needed to show them.
If files are not present or cannot be displayed, you will be
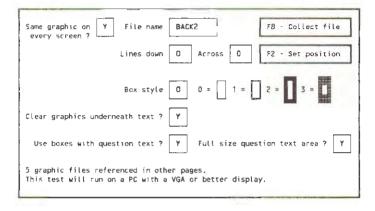advised here.

Figure 7.3 Main screen area while editing Display page

The Display page applies to every screen in the test, ie to each
question and the introduction and final screens, if there are
any. By pressing F5, while editing the Display page, you can
try out the current settings as an example. You can set the
following boxes.

**Same
graphic on
every
screen?**

This box defines whether there is a background graphic used
on every page of the test. Such a graphic is displayed as a
backdrop to each question and screen, with foreground
graphics and the question wording overlaid on top of it.

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You can use a background graphic to give a unifying look and feel to your test, or otherwise to control the way your material is presented. If you need to countermand the use of the background on particular screens, you can do so (by setting the *Use background graphic defined in Display page?* box on the graphics definition page).

If you do define a graphic, then you set the *File name*, *Lines down* and *Across* boxes in the same way as on the graphics definition page as described in section 7.3. You can use F8 to collect the picture, and F2 to edit or position it.

There are a few sample backgrounds in the example files included with Question Mark. You can use these backgrounds, or design your own. Among the example files are "null" backgrounds (NULLEGA.PCX and NULLVGA.PCX) that can just be used to force the test into EGA or VGA Colour graphics modes. Graphics mode is slower to display, but the screen display and student buttons look smarter.

Box style

The delivery software can draw rectangular boxes round the question and other wordings, and the student answer area for most question types. You can disable boxes round the question wording (but not answer area) as described below.

You choose from four styles for these rectangular boxes, by setting a number from 0 to 3 in this box. What the styles look like is shown on the screen.

Clear graphics underneath text ?

Setting this allows you to choose two different ways that text is displayed if you are using graphics. You must decide whether the graphics is to be cleared when text is drawn, or whether text is drawn overlaid on graphics.

If you set it to 'Y', then, when drawing text, the graphics

underneath is cleared first, so that the text is drawn on a blank background. If you set it to 'N', then the text is drawn on top of the graphics. This can be harder to read, but may look good with some graphics. Some text (eg the student answer in most question types) always clears the graphics underneath, however you set this box.

Which setting to use depends on the graphics you are using. Use F5 to try out the settings and decide which one is best. If you are not using graphics, then it doesn't matter how you set this box.

Use boxes with question text ?

By setting this box, you can define whether the question wordings are surrounded by a rectangular box when your test is delivered. If you set this to 'Y', such boxes are drawn; if you set it to 'N', they are not.

Whether or not you choose to draw boxes round your wordings will depend on what kind of graphics you are using (as the boxes may interfere with the graphics), and on your personal preferences. The best thing to do is to try out various options, and choose the one you like best.

If you decide to use boxes, you can countermand the use of a box on a particular question or screen, by setting the *Draw box round question text as defined in Display page?* on the graphics definition page.

Full size question text area ?

Setting this allows you to make another choice about how question wordings etc. are displayed.

If you set this to 'Y', then the boxes round question wordings and the size of any area cleared as above is always of fixed size. The size is to enclose 7 rows of 72 characters. If you set it to 'N', then the boxes or area cleared are set just large

enough to enclose the actual text you have defined, ie they will be shorter than the fixed size ones.

Again you should use F5 to try out the settings, to get the one that suits you best.

The various settings on the Display page interact with each other and with the settings on the individual graphics definition pages. There are many different ways in which you can control the display of your test. This means that you should be able to get things looking the way you want, but you may need to experiment until you get what you are looking for.

7.5   Defining the colours used in a test

7.5.1   Colours and picture palettes

An extra consideration when using graphics is which colours or "palettes" are used in pictures. This is quite a technical issue, and you may wish to skip over this section of the manual until you need to consider it.

Question Mark displays pictures in 16 colours. There is a standard palette (set) of colours that is used by default on a PC. This consists of the black, white, blue and red etc. colours that you are used to seeing on your display. On a monochrome display, these colours are mapped to shades of grey.

However it is possible for a picture to use a different non-standard palette of colours, and this information can be included within a .PCX file. Although you are limited to only 16 colours at a time, *which* 16 colours are being used can vary from picture to picture.

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For example, if you have a picture of a rose, you might use several different shades of red to show the flower in its glory, using a palette with several shades of red, but without some other colours that aren't needed in this picture.

Some .PCX files that you will wish to incorporate in tests may use such non-standard palettes. This can either be because you have defined this when setting up the picture (eg in a graphics editing program). Or it can be because the program from which the picture has come has used a non-standard palette for its own reasons.

You can completely edit the palette of a picture with most graphics editing packages. You can change the palette to standard from within Question Mark by choosing the *Palette* option while viewing or setting up the picture (see section 7.2.5). In some circumstances this can look satisfactory, but in others the change of colours will make the picture unusable. If the palette is already standard, the software will tell you this when you try to make it standard.

The whole screen when displaying a question can only be in 16 colours. If there is one graphic on a page, Question Mark uses the palette in the graphic for the whole screen, including the question wording and the instructions. Thus using a non-standard palette means that the text accompanying the graphic can be displayed in different colours. Sometimes this text is displayed in a colour that is hard to read, in which case you may need to change the text colour by setting the Video page, as described in section 7.5.2 below.

When there is more than one graphic used in a screen, the palette is taken from the background graphic, if there is one, or else from the first foreground graphic. Any palettes in other graphics are ignored. If you do use non-standard palettes, then you would do as well to make sure that all pictures on the same page use the same one.

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7.5.2   Setting colours in the Video page

Question Mark uses a standard set of colours on the screen to display text. These colours are the same whether or not you are using graphics (except if you use a non-standard palette as described above, and except in monochrome modes which are all black and white). Most text is displayed white on blue, which looks good on most PCs.

You can change the colours used, either because you prefer different ones, or because the palettes of your graphics pictures mean that the standard colours are mapped to colours that do not look good.

One way of defining colours is to set the Question Mark setup file (QMARK.CFG), which applies to all circumstances when running the Question Mark main and delivery software. See section 12.2 for how to do this. This is most appropriate if you want to use the same set of colours across all your material.

The other way to define colours is to set the Video page, one of the general pages of a question file. This allows you to define the colours just for this test. If you set the colours in both the Video page and the setup file, the Video page colours have priority.

You edit the Video page by selecting the *Video* option after pressing F2 from the question display screen, or else by clicking on *Video* in this screen. Figure 7.4 shows the screen while editing the Video page.

As usual, you press F10 to save the page and F9 or ESC to quit without saving.
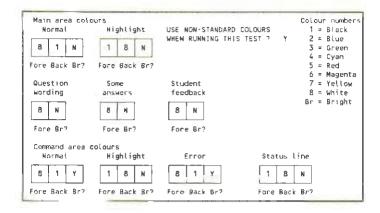
```
Main area colours                                          Colour numbers
   Normal            Highlight      USE NON-STANDARD COLOURS    1 = Black
                                    WHEN RUNNING THIS TEST ?  Y  2 = Blue
  ┌───┬───┬───┐    ┌───┬───┬───┐                              3 = Green
  │ 8 │ 1 │ N │    │ 1 │ 8 │ N │                              4 = Cyan
  └───┴───┴───┘    └───┴───┴───┘                              5 = Red
  Fore Back Br?    Fore Back Br?                              6 = Magenta
                                                             7 = Yellow
   Question          Some           Student                   8 = White
   wording           answers        feedback
                                                             Br = Bright
  ┌───┬───┐        ┌───┬───┐       ┌───┬───┐
  │ 8 │ N │        │ 8 │ N │       │ 8 │ N │
  └───┴───┘        └───┴───┘       └───┴───┘
  Fore Br?         Fore Br?        Fore Br?

Command area colours
   Normal            Highlight        Error          Status line
  ┌───┬───┬───┐    ┌───┬───┬───┐   ┌───┬───┬───┐   ┌───┬───┬───┐
  │ 8 │ 1 │ Y │    │ 1 │ 8 │ N │   │ 8 │ 1 │ Y │   │ 1 │ 8 │ N │
  └───┴───┴───┘    └───┴───┴───┘   └───┴───┴───┘   └───┴───┴───┘
  Fore Back Br?    Fore Back Br?   Fore Back Br?   Fore Back Br?
```

Figure 7.4 Main screen area while editing Video page

USE NON-STANDARD COLOURS WHEN RUNNING THIS TEST ?

This box defines whether to define the colours used. If you set this box to 'N', then the standard colours are used. If you set it to 'Y', then you define the colours to be used on this page.

Question Mark comes with default colour settings that are pleasant to look at on many displays. However people have different preferences, and displays can vary quite a lot. What looks good on one display can look horrible on another one. Once you set the colours, if you want to restore the default (or setup file) colours into the Video page, you can do so by turning off this box and then turning it on again.

Colours are defined by setting attributes. Each character on the display has an attribute, which can be independent of other character's attributes. An attribute consists of a foreground colour, a background colour and whether the foreground is bright (high intensity) or not.

The way you define Question Mark colours is to define a series

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of attributes (foreground, background and whether bright). The main attributes that are used are:

- the ordinary attribute in the main part of the screen;

- the highlighted or reverse attribute in the main part of the screen;

- the ordinary attribute in the command part of the screen (bottom 3 lines);

- the highlighted or reverse attribute in the command part of the screen;

- the attribute for command area error messages;

- the attribute for the status line.

The graphical student buttons are of fixed colour, and are unaffected by these settings. Additionally (in the middle of the editing screen), you can define some extra colours for test delivery. With these, you can use different colours in your tests for question wordings, student answers and computer feedback. You can define three extra attributes:

- the attribute for the question wording (all questions except explanations which use the ordinary attribute);

- the attribute for student answers in questions where the student types in an answer (mainly free format, numeric, and word answer questions);

- the attribute for computer feedback (eg hints and saying the right answer).

For these extra attributes, you only define the foreground colour and whether this is bright. The background colour

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comes from the main part of the screen. (Student answers to the other question types use the main highlighted attribute; if you want to make all answers have the same attribute, you need to make the extra answers and highlighted main attributes the same.)

You define colours by typing a number for foreground and for background, and then putting 'Y' for bright or 'N' for ordinary. You use the numbers 1 to 8 as described on the screen; note that these will be mapped to different colours if you use a non-standard palette. The foreground and background colours must be different. The best way to decide on some new colours is to sit and experiment until you find a mix of colours you like.

While editing the page, you can see the colours you have chosen above each box. However if you are using palettes that re-map the colours, then these colours may not actually be the colours that appear on your display. You can use F5 to try out the colours while displaying the graphic in the display page, if you are using one. This will help you sort out palette problems.

If you are using non-standard palettes, then you may well have to vary the colours used in the Video page to make your text stand out and be readable.

8.   Delivering tests

8.1   Releasing tests for delivery

8.1.1   The Question Mark delivery software

Students answer tests using the delivery (or student) part of Question Mark. This is a separate program to the main part of Question Mark. The program file for the delivery software is called S.EXE. This Chapter of the manual describes how you can set up and use the delivery software to run your tests.

Other language versions of the delivery software work exactly like the English language version, except that screen instructions are in the other language.

The rest of section 8.1 describes the process of copying and releasing tests for use. Section 8.2 describes how you use and install the delivery software. Section 8.3 describes the process of running the test, and section 8.4 covers some advanced topics.

8.1.2   Piloting tests

Before delivering a test to your students, you should try it out carefully and thoroughly, to make sure that there are no errors in it. Among the things to look for are inaccuracies in your material, spelling mistakes and poor grammar, and questions that are ambiguous or could have answers that you have not thought of.

If possible, get someone else to try it out for you, as it is easier to find mistakes in other people's work than your own. Ideally, you should properly pilot the test with a sample of people

before using it for genuine assessment, to find out whether the test measures properly what you are trying to assess.

You can try out a test either using the delivery software or using the F5 key from the Question Mark main software Directory screen.

Once you are satisfied with a test, it is good practice to make a release (or final) copy of the test, and clearly distinguish this from earlier working versions. If your test is to be used for serious purposes, then you need to be sure that the version you are using has been fully tried out. You also need to have a record of the exact test your students have answered. Should you make any amendments to the test, then ideally you should pilot the test again, and make a new released version.

In order to manage this, you may want to use one directory for the tests that you are working on, and another directory for tests that you have released. You should also take a back-up copy to floppy disk of all tests when they are released.

There is nothing built into Question Mark to stop you from running tests without trying them out first, nor from keeping your working and finished tests together. It's just that these are sensible procedures for most people.

The only Question Mark restriction is that you need to have the original question file that was used to deliver the test to obtain some of the reports on answers. (See section 10.3 for more details of this.) If you do not have the original file or have changed it, then you cannot make the report. Thus, you should keep a copy of the question files that you use to deliver a test.

The publishing software described in the next section is the easiest way to make release copies of tests.

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8.1.3   Publishing tests

The Question Mark publishing software copies all the files needed for a test onto a floppy disk or hard disk directory. You can use it to make a student disk from which your students can answer a test, or as an easy way to release a test.

You could copy files with DOS or using the *Transfer* command, but the publishing software is faster and easier to use. It is particularly useful if you have lots of graphics files in a test, as it will identify and copy them all for you.

To publish a test, you select the question file on the Directory screen. You then press F2 and select *QPublish*. The software searches for all the files needed for the test, and shows you a list on the screen. Figure 8.1 shows an example list.

```
┌──────────────────────────────────────────────────────────────┐
│            ┌─────────────────────────────────────────────┐    │
│            │ Making student disk for question file Graphics │  │
│            └─────────────────────────────────────────────┘    │
│                                                                │
│  Question file                    GRAPHICS.QUE          10646  │
│                                                                │
│  Student help file                GRAPHICS.HLP           2535  │
│                                                                │
│  Graphics                         7 files              145537  │
│    GRAP0001.PCX  GRAP0002.PCX  GRAP0003.PCX  GRAP0004.PCX       │
│    GRAP0005.PCX  GRAP0006.PCX  GRAP0007.PCX                     │
│                                                                │
│                                                                │
│  Setup file                       QMARK.CFG    (C:\QMARK3)  41  │
│  Delivery software                S.EXE        (C:\QMARK3) 130193│
│                                                                │
│  Total size of all files                          288952 bytes │
│  (ignoring disk sector size)                                   │
└──────────────────────────────────────────────────────────────┘
```
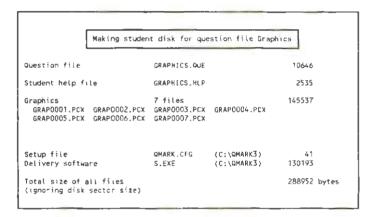
Figure 8.1 Example screen while publishing

The screen shows all the files used by the test, and the size of each one in bytes. The list can include the following files.

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Question file

This is the main file defining the test.

Multimedia file

If you are using the optional Multimedia Editor (an add-on program to Question Mark Professional that lets you call other programs), the list will include the multimedia control (.QMM) file. The publish software does not copy program files referenced by multimedia calls; you must copy these separately.

Student help file

A student help file can be associated with the question file, and will be copied if found on the current directory. See section 12.6 for a description of student help.

Graphics

The software counts all the graphics files referenced and lists them on the display (or as many as there are room for). If some files are missing from this directory, it tells you. In the example in Figure 8.1, there are seven .PCX graphics files.

Setup file

You can create a Question Mark setup file (QMARK.CFG) to define some preferences about the way the software works. The publishing software looks for this file, and copies it if it can find it. See section 12.2 for more information on the setup file.

Delivery software

The publishing software also copies the Question Mark delivery software. It looks by default for the file S.EXE, but if you are using a different named delivery software (eg a foreign language version), you can tell the software this in the setup file (see section 12.2).

At the foot of the screen, Question Mark shows the total size of all files used, so you can get an idea of the disk space needed to store the files. The physical disk space that will be used varies with the disk sector size, but will be around this value.

All files except S.EXE and QMARK.CFG must be on the current directory. The software searches for these two files on other directories in the standard way Question Mark looks for files. This is first in the current directory, then in the directory that was current when Question Mark was launched, then in the path pointed to by the environment variable QM and finally in directory \QMARK3 in the current drive. The screen shows the directory it has been found in (C:\QMARK3 in the example in Figure 8.1). You should check that this is the correct version of the file(s), if you have more than one version on your hard disk.

If one or more graphics or other files are missing, the software just displays the list of files and does not let you save. You press ESC to return to the Directory screen.

When all files are present, the software offers you a choice of where to copy the files to. If you do not want to copy the files, just press ESC. The menu options are as follows.

ACopy

Copy the files to a floppy disk in drive A:

BCopy

Copy the files to a floppy disk in drive B:.

Specify

The software asks you for the name of a directory, which can be any hard disk or floppy disk directory, and the files will then be copied to this directory.

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When the files are copied, the software replaces (ie deletes and overwrites) any existing files on the directory or disk being copied to.

If the test branches to other tests, these other tests are not copied automatically by the publishing software. You must publish each of them, one by one. The publishing software does not copy the student validation file (see section 12.7), and you must copy this manually if you need it.

8.2   Setting up the delivery software

8.2.1   Delivery software basics

The delivery software takes a question file that you have created and asks a student the questions in it. If you have specified this when creating the questions, the student answers are stored on disk in an answer file. Another question file may also (if you specify it) be called up at the end of the first one.

The question file is normally taken from the current directory, and the answer file normally written back to this directory, but you can specify the directories used if you prefer.

The delivery software records the current date and time in the answer file, if one is made. This is a useful piece of information for you to have in reports. Question Mark takes the current time and date from DOS; if you want to take advantage of this information, then ensure that the DOS date and time is set correctly.

It is possible to set that a test is barred from being run until a certain date (see section 11.2.2 for how to do this). For such tests, the DOS date is used to see whether the test can be run.

8.2.2   How to choose which test to run

There are two ways the delivery software can be invoked.

The normal way is just by typing "S". The software then searches in the current directory for all question files.

Unlike the main software, which simply scans the DOS directory to find files with a .QUE extension for the directory screen, the delivery software looks at each file to check it is a legitimate test. It discards tests that have been date barred, or otherwise disabled for student use. If it finds none, it says so. If it finds just one, it runs it. If it finds more than one, it offers a list for the student to select from.

This list consists of the test titles (as defined in the Control page) and question file name, sorted in alphabetical order of title. You can add a graphic to the screen showing this list using the /I parameter described in section 8.4.1.

The student can then choose which test to answer; and after he/she has done that one, the list is presented again to choose another one. If there are more files than will fit on one page, then the student can see other pages of files, by pressing PgUp or PgDn (up to a maximum of 200 files in all). The student presses ESC to finish.

An alternative way to invoke the delivery software is by including the question file name on the command line. Thus, if the test is called GEOG, you can run it by typing from the DOS command line "S GEOG". This runs that test and then returns to DOS. The test name can be preceded by a path name (eg A:GEOG or \QMARK3\GEOG) in the same way as with most DOS commands. Such an invocation can be from a batch file, if you wish.

You can use parameters to further control the delivery

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software. See section 8.4.1 for how to do this.

8.2.3   Distributing the delivery software

You can deliver tests from floppy disk, from hard disk on a standalone machine, on a local network, or even via electronic distribution.

Remember that unless you have purchased a distribution licence for wider use, you are only permitted to use the delivery software within one site, including on a local network. If you want to distribute the software to a wider extent to deliver tests at a distance, then you need to purchase an additional licence.

Floppy disk

The simplest way to distribute tests to your students is via floppy disk. Format a floppy; then use the publishing software described in section 8.1.3 above to copy the files needed onto the floppy disk.

You can then give or send the floppy disk to each student. Tell the student to put the floppy disk into the default drive, and to type "S"; he/she can answer the tests, and any answer files will be stored on the floppy. When the floppy is returned to you, you can easily abstract the answers from it.

Standalone hard disk

On a standalone hard disk, you may want to set up a separate sub-directory for students. You can use the publishing software to copy the test into the sub-directory. Students then can sit at the computer one by one, and answer the tests. You can analyse the answers later.

Local network

Question Mark works well on most local area networks, including Novell networks. Normally you will copy the

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delivery software, and question and associated files into a publicly accessible "questions" directory for students to access. Again you can use the publishing software to do this. You will normally want to arrange to save answers either in a private directory for each student, or else in a separate "answers" public directory. Section 8.4.4 gives more information on network use.

Electronic
distribution   If you have the facilities, you can electronically transmit question files to remote offices for delivery there. You need some way of transmitting DOS binary files, eg a modem or a wide area network.

If you are doing this, you should normally install the delivery software permanently on the delivery computers, and then send over the question and other files needed to run the test electronically. Answer files can be returned in the same way. If you are transmitting tests with colour graphics, you may want to use compression software (eg PKZIP) to compress the graphics files to save transmission time.

8.3   Running a test

8.3.1   How students use the software

The delivery software is designed to be self-explanatory - so that students do not need a user manual to use it. However, when using Question Mark for the first time for exams or important tests, it is a good idea to give students an example test first, to let them get used to using the computer and software.

The delivery software is controlled by buttons at the foot of the

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screen. The student can either click on these buttons with the mouse, or press the key that they represent. The following buttons are available at various places in the software.

SPACE **Go on**	**Go on** to the next question or screen. The student does this by clicking on the button or by pressing Space.
ESC **Stop**	**Stop** the test or finish doing something. The student does this by clicking on the button or by pressing ESC.
F10 **Accept**	**Accept** the answer to a question and continue. The student does this by clicking on the button or by pressing F10. The student has to do this to finish answering each question.
? **Pass**	**Pass** over this question to come back to answer it later. The student does this by clicking on the button or pressing "?".
+ **Change**	**Change** the answer to a question. The student does this by clicking on the button or by pressing " + ".
F1 **Help**	Obtain **Help**. This is only available if you define a student help file, as described in section 12.6.
F2 **Repeat**	**Repeat** a multimedia call. This button is only available if you are using the optional Multimedia Editor add-on.
Pg Up **Go back**	**Go back** to the previous question or screen. The student does this by clicking on the button or pressing PgUp.

Pg Dn
Go on

Go on to the next question (this is an alternative way of phrasing the Space button above) used in conjunction with **Go back**.

The student buttons are displayed in two different ways, depending on the screen mode.

- In VGA Colour and EGA Colour modes, they are displayed graphically using a "sculptured effect" that looks smart on many displays. The colours used for the buttons are preset, and will not vary with your setup file or Video page settings (though a graphics palette will change them).

- In other modes they are just displayed using text, in the standard command window colours.

If you want to always use graphical buttons, you can force the display into the graphical modes by using a blank or very small graphic as a background graphic on the Display page. Example background files NULLEGA.PCX and NULLVGA.PCX are supplied to help you do this.

If you want to use text buttons even if you are in the graphical modes, use the /B command line switch described in section 8.4.1 to disable the graphical buttons.

When buttons are referred to in this manual, using a button means that the student can either click on it with the mouse, or press the associated key.

Above the buttons on the delivery software display, there is a status line. This shows the question number, the student name, the time remaining and the running score (if set up in the question file). The main part of the screen contains the

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question, the student answer and any computer feedback.

Trying out a test or question from the Question Mark main software works exactly like running the delivery software. However the *Stop* button is always available so that you can escape from the test. Additionally, when trying out a question, right answers are sometimes given to you even if they would not be to the student. This is to make easier for you to try out computer marking.

8.3.2   Student names and the introduction screen

On selecting a test, if directed in the question file, the student is invited to type in his/her name. Depending on the setup file (see section 12.2) the student may only be asked to type in his/her name once per run of the delivery software (so if several tests are run in one session from the delivery software, the computer assumes they are all from the same student), or else the name may be asked for each test.

The student then sees the introduction screen, if you have defined one. You define this when creating the test (see section 5.2). On seeing the introduction screen, the student can choose either to *Go on* and do the test, or else to *Stop* and not do it. Thus if the student makes a mistake about which test to answer, he/she does not have to go through with it.

8.3.3   Delivery of questions

Each question is then asked in order. The first question is question number 1 and questions are numbered consecutively. If questions are chosen at random, the question numbers that the student sees may be different to those that you see. For example if there are 20 questions in the question file and 10 are to be selected at random, you will have set questions 1 to 20,

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but the student will see questions numbered from 1 to 10.

Clear instructions are given for each question type. The student answers the question with the keyboard or mouse, and then uses *Accept* to tell the software to accept the answer. For most question types, the student can answer with a blank or empty answer.

If students are allowed to pass over questions, they do so using *Pass*. If students are allowed to escape from the test early, then using *Stop* will leave the test, as if all questions were passed. If each answer is to be confirmed, then students are asked to use *Go on* to confirm the answer or *Change* to redo it.

In *After* test types, for questions that are marked, the computer then works out whether the student is right or not. If wrong, a retry may be offered. After that the student is told whether he/she is right; if wrong, the student is usually told the right answer, and may be told the score for the question.

For questions that follow explanation questions, the student can use *Go back* to return to the previous explanation screen. This is only allowed in tests without branching between questions or randomisation. If branching is being used, then this takes effect as specified in the question file.

After all questions have been gone through, if the student has passed over any questions, then they are offered again.

After answering any passed questions, then if the question file specifies that the student can go back and change answers, the student is allowed to do so. Each question is shown to the student, who can choose to answer it, or go forward to the next question, or backwards to the previous question. When finished, the student uses *Stop* to finish the test.

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8.3.4   What happens at the end of a test

After all the questions, the answers may be saved to disk. The answer file is saved before the student sees the final screen, and before any final marking.

If there is a problem when the answers are saved, the computer waits a while and tries again. If there is still a problem, the student is told of the problem (eg no room on disk). He/she can then choose one of three choices.

- Press "A" to abandon saving the answers.

- Press "R" to retry the save to the original place.

- Press "F" to save the answer file to floppy drive A:\.

A list of possible problems and error messages is in the trouble-shooting Appendix.

After this, in *End* test types where right answers are to be shown to the student, the student sees some final marking screens. For all marked questions which were passed or are wrong (includes mis-spelt or inexact) the student is told so, and given the correct answers. Depending on the question file settings, the student may also be told scores and shown the questions that are right.

At the end of the test, the student usually sees a final screen. The contents of the final screen depend on the question file settings (see section 5.4), and can include wording and graphics that vary with the student score.

If this has been set in the question file, the final screen is then printed. The student is told to press a key when ready to print. This facility uses DOS to print the screen (in a similar fashion to using the "Print Screen" key). If you are using graphics in

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your final screen or have a graphical Display page, this will only work if you set DOS up to allow graphical screen-printing. You do this using the DOS GRAPHICS command (see your DOS manual). You may need to include a call to this command in a batch file used to run the delivery software.

If another question file is called for, the name of the file is shown on the final screen. (This message is omitted if you use the /E parameter described in section 8.4.1 below.) After displaying the final screen, the software searches for the file on disk (in the same directory as the original question file). It may use it even if student access is "stopped" (see section 11.2). Assuming that a new question file is found, the steps above are repeated for the new test (but the student name is not re-asked). This can continue indefinitely.

8.4   Advanced use of the delivery software

8.4.1   Using command line parameters with the software

You can further control the delivery software using parameters on the command line when you invoke the delivery software. These parameters are specified on the command line in the same way as parameters to DOS commands are, and are primarily designed to be used from a DOS batch file. If you are inexperienced with computers and DOS, you may not want to use these parameters, but they can be very useful. The available parameters are as follows.

/A = name

This parameter must be followed by a legal file name (up to 8 characters), and allows you to specify the name of the answer file to be used throughout this run of the delivery software (over-riding any file name specified in the question files). This

can be particularly useful if you want a student to answer lots of tests in one session, with all answers saved to a single answer file.

/B

Usually the student buttons are displayed graphically in VGA Colour and EGA Colour mode, in a more pronounced style that in text and other modes. If you do not like the look of these graphical buttons, or if you do not want to use them because your material is moving around between graphics modes, and so the change would be confusing, you can disable them with this switch.

/E

Specifying this parameter removes the student's option of escaping from a test from the introduction page. It also disables the message on the final screen that tells the student another question file is to be run. You should use this parameter when you have a sequence of question files, one going on from another, and you want moving from one to the other to be as transparent as possible to the student.

/F2

This parameter is only useful in tests that use multimedia files defined with the optional Multimedia editor. If it is set, then the **Repeat** button will be available so that students can repeat multimedia calls. It has no effect if multimedia is not being used.

/G = name

Using this parameter is one of the ways of allocating students to a group. The group name is stored in the answer file with the student name. Student groups are described in section 9.2.3.

/I = name
[,number]   This parameter lets you define a graphic to be used on the

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front screen of the delivery software, where students choose which test to run. This can be useful to display a banner or logo at the start of running the software.

The name in the parameter is the name of a graphics file on this directory, and the optional number (from 1 to 17) is the row on the screen the graphic is to start at. The graphic is displayed at this position, centred horizontally, with the list of files written over it. You may want to place the graphic towards the bottom of the screen, leaving the list of files at the top.

For example the switch /I=HELLO,10 will display graphic file HELLO.PCX (or .QMG, .PCT) ten lines down the screen.

/L

This parameter is only for experienced users. Its effect is to set the DOS ERRORLEVEL depending on the actions of the program. If at least one set of answers is successfully saved to the correct place, the ERRORLEVEL is set to zero. If no answer files are saved, the ERRORLEVEL is set to 1, and if there is a disk error saving answers (including if there is an error and the student presses "F" to save to floppy), the ERRORLEVEL is set to 2. If you are calling Question Mark from a batch file, and want to do something with the answers after they are saved (eg run one of the Question Mark add-on programs to produce a report), this parameter can let you check whether an answer file has been saved, before doing something with it.

/M

This parameter disables use of the mouse within the delivery software. You can use it if you do not want students to use the mouse, or if there is some compatibility problem with your mouse.

/P = name

This parameter must be followed by a DOS path name, and allows you to specify the path (drive and directory) to which answer files are saved. If you do not use this parameter, then answer files are always saved on the current drive and directory. With this parameter, you can specify where they are saved.

/Q = name

This parameter must be followed by a DOS path name, and lets you specify the path (drive and directory) where question files are to be taken from. Normally, this is the current directory, but with this parameter, it can be any directory. The /Q parameter cannot be used if the question file name is specified on the command line.

/S = name

This parameter allows you to specify the student name from the command line. This can be useful if you are running Question Mark from another software package, and already know the name you want to assign to the student, or else if you are running the software from a batch file and want to specify the student name.

/S = ?

Using the /S parameter in this way defines the student name as a random sequence of letters and numbers. Using this parameter, students are given random (and thus unique) names. This can be useful as an identifier in the reporting software.

/!* *

This parameter should be used *only with great care*. It automatically deletes the question file after it has been loaded into the delivery software. Thus if you use this switch, the question file can only be asked once, which prevents a student from going over the same test more than once. This can be

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useful as a security measure. Thus "S GEOG/!**" runs test
GEOG, and then deletes file GEOG.QUE. Use this switch
with great care, or you will delete files you do not mean to.

/$

This parameter means that all question file names which start
with the dollar ($) character, will be left off the list of test
names given to the student. This can be useful if you want to
exclude certain tests from the menu.

Here are some examples of the use of parameters.

S MILL/S = JOHN/A = JOHN

This asks test MILL on the current directory, setting the
student name to JOHN, and saving the answers in a file
JOHN.ANS on the current directory.

S/P = B:

This runs the delivery software giving the student a list of
available question files and saving all answer files to the B:
drive. You could use this if a student is using a dual floppy
machine, with the question file and delivery software in the A
drive, which should be current, and a blank disk for the answer
file in the B drive. (This would give plenty of space on disk for
the answer files, and might make it easier to distribute tests and
collect answers.)

S/Q = D:\PUBLIC\TESTS/P = D:\SHARED\ANSWERS

This runs the delivery software offering a choice of question
files from one directory on drive D, and saving all answer files

to another one. A command of this kind might be useful as a
standard batch file for use on a network, where you want to
specify centrally where question and answer files are to be
placed.

S/M/B/S = ?/G = PATIENT

This runs the delivery software without the mouse or graphical
buttons being available. A unique random student name is
generated, and the student is allocated to a group with name
"PATIENT".

8.4.2   Using graphics to best advantage

When you are designing your questions, you need to leave
room in the question for both the graphics and the question,
answer and feedback wording.

The simplest way to do this is to put your graphics inside the
question wording area on the screen. Either it can take up the
whole of the question wording area (with no question text
defined), or you can share the question wording area between
graphics and text. This is failsafe, but restricts the size of the
image you can have.

You can use images that are much larger than the question
wording area, indeed even ones as large as the whole of the
main window. If you use larger images, then sometimes you
will conflict with other uses for the rest of the screen - eg your
graphics may be drawn in the same place as the student is
supposed to type in the answer. You can easily check whether
the question will be alright or not by trying it out.

There is more room for graphics in the 640x480 resolution
VGA Colour and Monochrome modes than in the other modes.

This is because text characters are smaller, and take less space on the screen in these modes; there is room for around 25 lines of text in these modes, as against 20 lines usually, and so you have 5 more lines. You should use these modes if you need to fit lots on the screen.

You can choose whether the wording in your questions (eg "What is this a picture of ?") is entered in the question file, or else is part of the image (ie defined outside Question Mark). Sometimes it will be easier one way, and sometimes the other. If the wording is to be in the graphics, then you will want to leave the question file wording blank.

Here is some advice, for each of the question and page types, on how to maximise the amount of space you can use for graphics.

Multiple choice

The box round the answers is drawn big enough to fit the largest answer, so to maximise the room for graphics, keep answers short (or use two line answers with text only on the left of each answer line).

Numeric

The answer area is small, so much of the screen is free for graphics.

Word

Similarly, much of the screen is free for graphics.

Fill in blanks

You should normally put the area for the student to enter the answer outside the area used by the image.

Free format

The answer box takes the whole width of the screen: so you should normally put graphics above it.

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**Matching /
ranking**

This behaves much like multiple choice, except you do not have the option of using two line answers. The shorter your choices, the more room you have.

**Multiple
response**

As matching/ranking questions.

Logical

As multiple choice questions.

Explanation

You can use the whole screen for graphics and/or put wording in either text box. Using the time limit facility, you can create graphical presentations or slide shows that automatically move along without the user needing to do anything.

**Introduction
screen**

With large images, you may want to avoid using the standard (computer-generated) introduction, as this takes up a large chunk of the screen. If you make the test title blank and leave both text boxes blank, you can use the whole screen for graphics.

Final screen

This screen is laid out slightly differently to the other screens, with the wording much further down the screen. You may need to turn off a background graphic and/or boxes for this screen, or otherwise use a different kind of (or no) graphics.

8.4.3   Use of disk and memory with graphics tests

Question Mark reads the whole question file into memory at the start of running a test. However graphics files are only read into memory when they are needed. This is because graphics

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files can be large, and there might not be enough memory for all of them.

If you are running tests from floppy disk, or if your graphics files are large, there may be a small delay on loading the graphics files from disk. Once read in, Question Mark stores the graphics in memory for as long as there is room, so if the student goes back and redoes a question, it may not always be necessary to read in the graphics again.

All graphics files must be on the current directory. You should avoid having two graphics files with the same name and different extension. Only the graphics file name is stored in the question file, and if there are duplicate files, Question Mark will first look for a .PCX file, then a .QMG one and then a .PCT file.

You can set the software to check that all graphics files are present and displayable at the start of the test. See section 11.2.2 under passwords for how to do this. This affects what happens if files are not present or if the test is run on a PC with a less capable display than the one you have designed it for.

If you set checking to be done, then there is a delay at the start of the test while graphics files are looked at. But if you do not check, then the software will only discover that a graphics file is not present or cannot be displayed on the PC when the file is needed. The student gets a message saying that the graphics for the question is not there.

Sometimes, if the graphics are just extra frills for the test, say a company logo at the start, you will not mind if this happens. However if the graphics are an integral part of the test, as they often will be, you may want the delivery software to refuse to run the test if the graphics are not available.

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One other related consideration is that on CGA computers, you need to use a DOS utility, GRAFTABL to be able to display graphics tests properly (see your DOS manual). You should ensure that students running on CGA computers use this utility.

8.4.4   Network delivery of tests

Every network is different, but here are some general guidelines on delivering tests on a network.

You should normally prevent students from having access to the Question Mark main software, for security reasons. You are best off both preventing them from accessing the software, and also protecting all files with a password. This means that even if they do get access to the software, they cannot do much because all question and answer files are password protected. See section 11.2 for information on adding passwords to files.

On a network, you will normally want to arrange the files used by the delivery software in a way that will suit your network structure. Except for answer files (for which see below), this is quite straightforward.

- You will normally want to put the delivery software (S.EXE) in some program or public directory in the same way as other programs that are used by many people.

- You may put your released question files on the same directory, or on another questions directory. You should use the /Q parameter to tell the software where the question files are, or else include the path name on the command line with the question file name. Any graphics and student help files must be on the same directory as the question files.

  You may want to use student passwords or date barring

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to prevent students from answering tests before you want them to. Or you may want to have several different directories for different groups of tests.

- If you are using setup (QMARK.CFG) or validation (QMARK.VAL) files, the software will need to be able to find them. The easiest way to do this is to put them on a convenient directory, and set the environment variable QM to point to the location of the files.

Some networks or network managers require that all files that are publicly accessible are set to be read only. You can make all the above files read only without any problems.

Answer files are more complicated in that they are written to or created while running a test. There are essentially two strategies for dealing with answer files.

- If your network permits it, you can use one shared directory to store all answer files saved. Thus every student saves their answers to the same place. You can define this directory using the /P command line switch.

- Each student on a network can store answer files in a separate directory. This can either be a private directory for the student, or a specific directory for each physical computer. The easiest way of defining this directory is to get Question Mark to save answers to the current directory (as happens if you do not specify something else), and to ensure that the required directory is current when the software is loaded.

A single directory is simpler to set up, and makes reporting easier because all the answers are set up. However it can be faster to save to a separate directory, and there are no complications with students trying to save at the same time.

If two or more students are trying to save their answers to the same file (ie they finish the test at about the same time), this should work with the network handling the file sharing automatically; one student waits for the other to save, and may have a short delay. But it is possible that one student will get a message saying that he/she cannot save the answers, but offering the chance to retry. If he/she retries after the other save is finished, their save will work too. You should advise students to always retry saving in such circumstances.

You will probably want to set up a batch file to be used for calling the delivery software on the network. This can either be called from the DOS command line, or from a menu system of some kind. Here are two example batch files.

If your QMARK.CFG file is on directory N:\QMARK3, your S.EXE file is on directory N:\PROGRAMS, your questions are on directory N:\QUESTIONS and you want to save all answers to a directory N:\SHARED, then you might set up the following batch file.

SET QM=N:\QMARK3
N:\PROGRAMS\S /Q=N:\QUESTIONS /P=N:\SHARED

If answers are to be saved onto separate directories, then you might set up a separate batch file for each student. This batch file can also define the student name so Question Mark does not need to ask it. Assuming the student name is JONES, and answers are to be saved to directory C:\JONES\ANSWERS, such a batch file might be as follows.

SET QM=N:\QMARK3
C:
CD \JONES\ANSWERS
N:\PROGRAMS\S /Q=N:\QUESTIONS /S=JONES

With the above information you should be able to devise your own batch files for your network. If you want to call up a particular question file to be asked, you replace the /Q parameter with the path and name of the question file.

9. Managing answer files

9.1 Answer files

9.1.1 What an answer file is

Every time a student runs a test, the answers are saved to disk, if you have specified this in the Control page when creating or editing the question file.

The answer file is normally stored on the current directory (for the student). The name of the answer file is normally the same as the question file name (with a .ANS extension rather than a .QUE one). You can define the answer file name (as any file name you want) in the control information page, when editing the question file. You can also specify the answer file name and directory on the command line when you call the delivery software. (The answer file can also sometimes be stored to floppy disk by the student if there is a disk problem in saving it - see section 8.3.4.)

Each answer file can contain up to 999 sets of answers. Each time a student does a test, the answers count as one set of answers. The first time a test is done, the answer file is created; each time it is done again, an extra set is appended to the file (up to a limit of 999 sets of answers).

If an answer file becomes full, then the delivery software automatically creates a new one with a similar name, and so on. The additional files have the same name as the first file, except a digit is added at the end; for example if the name is defined as GEOG, then files GEOG.ANS, GEOG1.ANS, GEOG2.ANS etc. will be created. If your answer file name already has 8 characters (the maximum length of a DOS file name), the software will not create an additional file in this

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way, and will refuse to save more than 999 answers in a file.

Answers for any test and for any student may be put in the same answer file. For example if you have a whole series of tests, all the answers can be put in the same answer file (by putting the same name in the Control page of the question file). Generally it is best to save answers from different question files in different answer files, especially while you are getting used to Question Mark.

9.1.2   What you can do with answer files

The main purpose of keeping answer files is to be able to report on them. Chapter 10 describes reporting, which always works on sets of answers within *one* answer file.

You can edit answer files, moving sets of answers from one file to another, or deleting them. When editing, you can also change some of the data stored in them, including adding bonus marks to the student's score. Section 9.2 below describes editing answer files.

Often you will want to collate answer files together so you can report on them. The most obvious need for this is when answers are saved on floppy disk, and you want to copy them all to hard disk to report on them. The Question Mark collating software is described in section 9.3.

Sometimes you will want to export the data in an answer file to other programs, to link in with other applications, or for further analysis. You can export the data in answer files to spreadsheet and database formats - see sections 12.3 and 12.4 for how to do this.

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9.2　Editing an answer file

9.2.1　How to edit an answer file

You edit an answer file by selecting it on the Directory screen, and clicking on it or pressing Enter. Editing an answer file works similarly to editing a question file.

On editing an answer file you see a list of sets of answers, one per line. The answers are shown in the order they were saved to the file.

For each set of answers you see the student name (or **no name entered** if none was entered), the percentage score and the name of the question file. On the left of each line you see a number that is used to identify the set of answers (and is sometimes needed to specify sets of answers while reporting on an answer file). If the student is allocated to a group (see section 9.2.3 below), this is also shown.

	Student	Score	Question file	Group
1	Smith	76%	HISTORY	CLASS 1
2	Jones	28%	HISTORY	CLASS 1
3	Williams	90%	HISTORY	CLASS 1
4	Brown	42%	HISTORY	
5	Harris	70%	HISTORY	
6	Masters	73%	HISTORY	
7	Smith	24%	GENERAL	CLASS 1
8	Jones	100%	GENERAL	CLASS 1
9	Williams	54%	GENERAL	CLASS 1
10	Brown	95%	GENERAL	
11	Harris	65%	GENERAL	
12	Masters	76%	GENERAL	

Figure 9.1　Screen display when editing an answer file

Figure 9.1 shows an example list. In the Figure, there are

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twelve sets of answers, six from one test and six from another.
Some students have been allocated to the group "CLASS 1".

You can select a set of answers to be current in the same way
as you make a question current when editing a question file.
Thus you click on the student name, or use the arrow keys,
PgUp, PgDn, Home or End, or type in the number of the set
of answers). You can then use the following keys.

Enter

Pressing Enter or clicking on the student name takes you to a
screen where you can view and change some data in the set of
answers. See section 9.2.2 below for more details on this.

Space

Pressing Space lets you allocate sets of answers to groups.
See section 9.2.3 below for more details of this.

F2

This gives you a choice of two options, *Sort* and *Unblank*.

- *Sort* sorts the sets of answers in the file in alphabetical
  order, by group and student name. This can be useful to
  structure the file.

- *Unblank* sets any blank student names to random strings
  of letters and numbers. This can be useful to identify sets
  of answers in anonymous tests, or for use with the Report
  Generator add-on which can only report on sets of
  answers that have student names set.

F3

This allows you to go to another file to view or copy sets of
answers from. Just as with question files, you see a list of
answers and can press F6 to mark a set of answers for
copying or Space to copy all sets of answers in a group. Use
F10 to finish copying and return to the main file.

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All copied sets of answers are saved in memory. If you run out of memory when copying answers, use F10 to save the file to disk with what answers you can, so returning to the Directory screen. Then re-try editing and copying some more sets of answers.

F6

This lets you delete the current set of answers. You must leave at least one set of answers: you cannot delete them all.

F9

This quits the edit. ESC also does this.

F10

This ends the edit, saving the file if changes have been made. Saving can take quite a while if the file is large. Saving happens in the same way as the *Same* option for question files; the old file is deleted, and a new one written (with a temporary .BAK file).

9.2.2   Editing a set of answers

On editing a set of answers, you see a screen of information about the student answering the test. You can change the student name and the question file name, and you can add some bonus marks and a teacher comment on the file.

To prevent unauthorised editing, you are recommended to assign a password to all answer files. This will make misuse of the answer editing software much less likely. See section 11.2 for how to assign passwords.

Figure 9.2 shows an example screen while editing a set of answers. You can set and change the information in the same way as filling in boxes on question screens. Pressing F10 saves

the data, and F9 or ESC quits without saving.

```
Time and date test was answered:    14:50   16.05.93

Student name entered originally:    Brown


    Student name                     Question file name

    Brown                            GENERAL


Student score (excluding any bonus) is 30
Minimum score for the test is 0
Maximum score for the test is 100
                                     Bonus marks

                                       0
Teacher comment

Not a very good score. Needs more work on basic principles.
```

Figure 9.2 Screen while editing one set of answers

You can set the following boxes.

Student name

You can change the student name, so that if the student did not type a name in, or mis-typed it, you can correct it. The original student name is still recorded and displayed on this screen and on most reports, so that there is a record of the change that has been made. A student name can contain up to 16 characters.

Question file name

You can change the question file name that the answers are supposed to have come from. You should not normally change this, but you can if you need to. The main reason for needing to change it is so that the reporting software can find the question file, if you have renamed it since the test was delivered. A question file name can be up to 8 characters, and must be a legal DOS file name.

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Bonus marks

You can add or subtract bonus marks from the student's score by setting this box. You might want to do this to supplement or override the computer's marking, for example for free format questions, where it is difficult to program the computer to handle every eventuality. The box contains any bonus marks, from +99 to -99. The total score (including the bonus) must remain between the minimum and maximum shown. Bonus marks are shown in reports on answers.

*Teacher
comment*

You can assign a line of comment to each set of answers, explaining the bonus score, or saying anything you want to be added to the student results in reports.

9.2.3   Groups of answers

You can use groups to subdivide sets of answers within an answer file. This works in an analogous way to allocating questions to topics in a question file.

You can use groups to help you manage large answer files and to help organise your reports. You can choose whatever meaning for the groups you want. You might for example use groups to represent different training classes, student years, or locations of people.

Each set of answers can be allocated a group name of up to 16 characters. Group names are the same whether they are in upper or lower letter case. By default, group names start as blank or unset. You can set the group name in three ways.

- by using the /G parameter when calling the delivery software (see section 8.4.1);

- by setting the default group name in the setup file (see

section 12.2);

- by defining it here when editing the answer file. You do this by selecting a set of answers and pressing Space. You then press Enter to set it for this set of answers, or else select a range of answers and press Enter to set the group for many answers. You then type in the group name.

You see on the screen the groups that you have allocated, and you can easily change group names by using Space as described above.

Groups make managing answer files easier. As described in section 9.2.1 above, you can *Sort* sets of answers by group and student name. By judicious setting of group names, you can use this capability to re-order your answer file any way you need to. You can easily copy all sets of answers in one group by using Space when viewing another file.

Groups are also useful when collating answers from many files into one. You can pick certain sets of answers from a lot of files and copy them into one file for reporting. See section 9.3 below for more details of this.

Groups are used in many reports, most especially the *Totals* report (see section 10.3.5), which reports on students answering tests by group.

9.3   Collating sets of answers

Collating allows you to copy sets of answers from several answer files into one answer file. You always copy to an answer file on the current directory, but you can copy from a

series of floppy disks or from a hard disk directory.

You choose to collate from the Question Mark Directory screen by pressing F2, and selecting *Utility* and then *Collate*. You can collate files in the same way by running the COLLATE.EXE utility program separately from the Question Mark main software.

You must take the following decisions to define how the collate is to work.

Enter name
of
destination
answer file
to collate to

You first define where answers are to be copied to by typing in a file name. This can either be an existing answer file on the current directory, in which case the collated answers are appended to the file, or it can be a new answer file, to be created.

Where do
you want to
copy answer
files from?

You then define the directory that answer files are to come from. You have four options.

● Choosing *A:* collates answer files from the root drive of floppy drive A.

● Choosing *B:* collates answer files from the root drive of floppy drive B.

● Choosing *Current* collates answer files on the current directory. This can be useful if you want to copy certain answers out of your answer files on hard disk for a particular purpose, eg to collate together all answers from one group.

● Choosing *Path* allows you to specify the path or directory in which answer files are looked for. This could be another hard disk directory, or a sub-directory

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on a floppy disk.

Which sets of answers do you want to copy?

This allows you to select which answers are to be collated, in the following ways.

- The *All* option collates together all answer files on the specified path, from all tests.

- The *Same* option collates together only answer files of the same name as the destination answer file. This is useful to copy together all answers from the same name answer files off floppy disk.

- The *Group* option asks you for the name of a group, and then collates together sets of answers with this group name from all answer files.

- The *Question* option asks you for the name of a question file, and then collates together sets of answers derived from this question file name from all answer files.

After you have specified how the collation is to work, the software invites you to insert a disk and press Space to start collating.

If you are collating from floppy disk, you should put a disk in the drive and press Space. Question Mark will then copy any sets of answers from it. You repeat this for every floppy disk, and then press F10 to finish collating.

If you are collating from hard disk, you will only want to run through one set of files. So you press Space to start collating, and when asked if you want to put another disk in, you press

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F10 to finish.

The software gives you feedback on the screen telling you how many sets of answers have been found and from which files. You can only collate 999 answers into one answer file, and the software will stop collating if you reach this limit.

If you want to interrupt the collating, you can press ESC at any time to finish early. Collating creates an ordinary answer file that you can view and edit in the same way as other answer files.

10. Making reports

10.1   What are reports?

Reports are listings of the data in question or answer files, arranged or analysed in various convenient ways. You can view reports on the screen, send them to the printer or write them to disk.

To call for a report on a file, select the file from the main Directory screen, and press F7. Then select from the menus offered to you for the kind of report you want.

There are three sorts of reports possible on a question file:

●   a complete listing of the file, for reference purposes;

●   production of a question paper from the file;

●   production of a question paper, together with a list of right answers.

Question file reports are described in section 10.2 below.

There are eight sorts of answer file reports, each of which abstracts some of the data in the file and presents it to you:

●   a Full listing of sets of answers;

●   a listing of the Answers only (without explanation);

●   a table (by student and question number) of the Marks;

●   a Totals report, a summary of the table of marks;

- an analysis of the answers, by Question;

- a Corrected question paper with student and correct answers;

- a Brief version of the corrected question paper, with wrong answers only;

- a Statistics report that calculates the difficulty and discrimination of questions.

Answer file reports are described in section 10.3 below.

After you have selected which report you want, you choose how to output it. You can output the same report several times (to the same or different output places - eg first to the screen and then to the printer) without having to re-select it. How to output reports is described in section 10.4.

10.2   Question file reports

10.2.1   Listing of whole question file

This report is a full printout of a question file. You can use it for reference purposes, and to assist you in deciding how to change it in the future.

The report describes the general pages in a test, together with the definitions of each question in the test (including the correct answers, if available). For improved security, the report does not include file passwords (for the next question file), if there are any. Graphics file names are listed, but the graphics themselves are not printed.

The report format is self-explanatory, and simply mirrors the data you have put into the question file.

10.2.2   Production of question paper

This report type allows you to create a test on paper from the question file. Such a test would be filled in by students in the conventional way (using a pen), and marked by you, without entry into the computer. (You could enter the student answers into the computer yourself after they have handed in their papers, but this could be a very time-consuming task.)

This facility is provided for those occasions where a computer is unavailable, but you nevertheless need to set the test. In such cases, the ability to print a question paper is very useful, but we do not recommend use of Question Mark solely to produce written tests (though there is nothing to prevent you from using it so if you want to).

The question paper is only useful for text tests. It does not include graphics. If you need to print a graphical test, you will have to use a word-processor or desktop publishing program to include the graphics.

The question paper starts with an introduction, if you have defined one; there is no provision for a computer generated introduction for written tests. For each question, the wording then appears, together with a blank area for the student's answer (or whatever else is appropriate for the question type). If you have defined questions to be presented at random, then some or all of the questions will be presented in a random order, in the same way as in on-screen tests.

Question Mark is designed primarily for on-screen tests, and the formatting facilities for paper tests are simple. If you wish to introduce more sophisticated formatting (eg italics,

underlining) or if you want to change the way the questions are presented, then you need to use a word-processor and to take the following steps.

1. Output the report to a disk text file (by selecting the **Disk** option, rather than the **Screen** or **Printer** ones).

2. Import the file into your word-processor. Most word-processors will be able to read the Question Mark text file. (Your word-processor manual may refer to such a file as an ASCII file).

3. Use the facilities of your word-processor to edit and print out the question paper, in the way that you want.

10.2.3   Question paper with right answers

This report contains the question paper as above, but has an extra section at the end which lists each question and gives the right answer to it.

You will need the right answers if you are going to mark the written test paper by hand. You can obtain them from the whole question file listing, but if you are randomising question order and shuffling answers (eg in multiple choice questions), working out the right answers without this report can be time-consuming.

For questions with a text answer, the report does not list all possible right answers, but just gives an example right answer. Complete information is given for multiple choice questions (which is probably what this facility is most useful for). For multiple choice questions that are right/wrong marked, the report lists all the right answers, and for such questions that are special marked, the report lists the scores for choosing each answer.

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10.3   Answer file reports

10.3.1   Selecting a report

You select which answer file report you want by choosing on a menu between *Full*, *Answers*, *Marks*, *Totals*, *Question*, *Correct*, *Brief* and *Stats*. When this menu is offered, some information briefly describing the reports appears on screen as a reminder of what each report does. You can get on-screen help about each report type, by using Space to highlight an option type in the command area, and pressing F1. To finish reporting, press ESC.

An answer file can contain many sets of answers from different students and question files. Some of the report types can only cover answers from the same question file; in these cases you have to select the question file to report on (by typing in its name after seeing a list of available ones).

For some reports, you can choose to report on just one set of answers in the file. Sets of answers are numbered consecutively from 1 (with the earliest answers first). You need to type in either the number or the student name to identify the set of answers; a list of some of these is displayed on the screen, but if you are unsure, then you can find out the numbers by calling for a Marks report to the screen (see below), or by entering the answer file editing part of Question Mark (see section 9.2).

Whatever the order questions were presented to the student (ie if they were randomised), they are held in the answer file in the same ordering as in the question file. Except for the corrected question paper reports (where the questions are presented in the same order as when the student answered them), question numbers mentioned in reports are the same for answer and question files.

10.3.2 Full report

A Full report is a listing of one or all of the sets of answers in the file.

If there is more than one set of answers in the file, then you choose on a menu between **One** and **All** sets of answers. If you choose **One**, then you enter the student name or the number of the set of answers. If you choose **All**, then the report covers all sets of answers one by one (this could be a very large report).

```
Full report on answers (set number 1) in file "Geog".
Student: "John".

  Question file "Geog" (last edited at 16:17  31.10.90).
  Title : Geography test. 7 questions asked.

  Test occurred at 16:19   8.11.90 and took 2 min,16 secs.


Questions
   1 : answer is "Rome"                            Mark :   5
   2 : answer is A C D chosen                      Mark :   0
   3 : answer is A2 B1 C4 D3 E5                     Mark :   5
   4 : answer is "India"                           Mark :   0
   5 : answer is 51                                Mark :   1
   6 : answer is :                                 Mark :   5
"Canada"
   7 : answer is choice 4 (Calcutta)              Mark :   0
                                                          ------
                                                            16

  Total score is 46% (16 out of 35 points).
```

Figure 10.1   Example Full report for one set of answers

The report includes a list of questions answered by the student, the answers, the marks and various general information, including which questions (if any) were re-tried. If topics are used, the report orders questions by topic, and summarises the topic scores at the end.

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10.3.3   Report on answers

An Answers report contains only (apart from a brief header) some of the answers in the file, presented as "raw data", without explanation.

If there is more than one set of answers in the file, then you choose between *One* (display all answers from one set), *All* (display all answers in the file, with each set following after the previous one), or *Question* (display all answers in the file to one question from one question file). *One* and *All* have similar effect to the full report; *Question* allows you to bring together in one report the answers to one question (useful for example if one of your questions is asking for general comments on something).

Questions that were not asked or were passed get a blank line in the report. Otherwise answers are displayed briefly one per line except that free format answers can take more than one line.

```
All answers (set number 1) in file "Geog".
Student: "John".

Rome
A C D
A2 B1 C4 D3 E5
India
51
   Canada
4
```

Figure 10.2   Example answers report corresponding to
                   Figure 10.1

10.3.4   Marks report

The Marks report deals with the marks in the file, being a table of students and questions showing the marks each student got for each question, and the totals. The Marks report covers all sets of answers from just one question file.

The report is presented in one or more tables, each containing the names for identity of up to 4 students horizontally and the question numbers vertically. (This will be a long report when there are many students and questions.) The students are sorted in descending order of total marks for the test.

```
Report on marks of question file "Geog" in answer file "Geog".

Minimum total score is 0. Maximum total score is 35.

Student  Margaretta        John            Peter           Maximillian
File no     4                1               3               2
Date      8.11.90          8.11.90         8.11.90         8.11.90
Time      17:26            16:19           17:24           17:24

Questions
   1 :      5                5               5               0
   2 :      0                0               0               0
   3 :      0                5               5               0
   4 :      5                0               5               5
   5 :      0                1               0               5
   6 :      5                5               0               0
   7 :      5                0               0               5

Total      20               16              15              15
Percent    57%              46%             43%             43%
```

Figure 10.3   Example Marks report

Each student is identified by his/her name, and group if defined. In case no name was entered, or the student answered the test twice, under the student name is shown the number of the set of answers in the file and the date and time the test was finished. The mark for the student for each question is then shown. If the question was not asked to the student (eg it was randomly selected out), a dash is shown. At the bottom of the

table is the total score and the calculated percentage.

The percentage is calculated by comparing the total score against the minimum and maximum possible scores. Normally the minimum and maximum scores are the same for all students and are displayed at the top of the report. However in some circumstances (for example where potentially high-scoring questions could be randomly chosen or not) the minimum and maximum possible scores could vary between students. In such cases the minimum and maximum possible scores are shown for each student. (It is possible for one student to have a higher total score but a lower percentage score than another student in such a case.)

10.3.5   Totals report

The Totals report is a different, shorter version of the Marks report, that summarises all the sets of answers in the file. It covers answers from all question files, but does not give the marks for each question. The report also includes the average time taken to complete the test.

```
Report on total marks in answer file "Geog".

Question file "Geog" :
Minimum total score is 0. Maximum total score is 35.

Student          Date      Time      Total              Percent

Margaretta       8.11.90   17:26      20                  57%
John             8.11.90   16:19      16                  46%
Peter            8.11.90   17:24      15                  43%
Maximillian      8.11.90   17:24      15                  43%

4 students in all.
Average total score is 17.
Average percentage score is 47%.
Average total time to complete the test was 5 mins.
```

Figure 10.4   Example Totals report corresponding to Figure 10.3

If you are using topics and groups, this report also includes information on these. The report is divided up by student group, and the score for each topic for each student is shown, as well as the average score in each topic.

10.3.6   Question analysis report

The Question analysis report is an analysis of the answers in the answer file for each question. It tells you how many answers of each sort there are and does some analysis.

The report covers only sets of answers from one question file. Unlike the answer file reports above, this report actually reads the question file as well as the answer file to make the report. It looks for the question file on the current drive/directory. If it cannot find it then an abbreviated report is given. If it can find it but it has been modified since the answers were made (or if a different file of the same name is found), you are warned that the files may not fit each other. If the report does not contain what you expect after this warning, see the troubleshooting notes below in section 10.5.

For this report you choose between *One* (report on one question only or report on questions one by one) or *All* (report on all questions). If you choose *One* then you type in a question number and after doing the report on it and pressing ESC you can select another question (or press ESC twice or *Finish* to stop reporting).

The report covers for each question, the question wording (from the question file), the number of answers, the number of answers that were re-tried and the number of passes. When a question is not asked for any reason, it does not count at all for this report. Answers are analysed as follows.

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```
Analysis of all questions of question file "Geog" in answer file "Geog"

Question number 1 :

    What is the capital of Italy ?

Answers : 16                                    Passes : 4

Answers (in original letter case) are :
Rome                                  Times answered :   11:69%
ROME                                  Times answered :    1:6%
Venice                                Times answered :    2:12%
Paris                                 Times answered :    3:19%


.....................................
.....................................


Question number 7 :

    One, and one only, of these cities is a capital city. Which one ?

Answers : 18                                    Passes : 2

Analysis of number choosing answers :
New York                                         6:33%
Calcutta                                         3:17%
Bangkok                                          9:50%
```

Figure 10.5   Part of an example Question analysis report

**Multiple
choice**

The number of students choosing each answer is given,
together with the percentage that this is of the total number of
answers.

Number

Every number given as an answer is listed, with the number of
times each is chosen and the percentage this is of the total
number of answers. Also given is the total and average of the
answers as numbers (though this will only be useful for some
questions).

**Word,
Fill in blanks**

Each different answer given is listed, together with the number
of times each is chosen and the percentage this is of the total
number of answers. Answers identical except for whether they
are in upper or lower case are treated as different even when

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they are marked as if they were the same.

Free format

The answers are listed, without analysis. Free format answers can take a lot of memory, and if there is insufficient memory, the listing of answers may in these instances be cut short with a note informing you of lack of memory.

Matching / ranking

The analysis is in the form of a table of answers, possible matches and the number of times each match is chosen.

Multiple response

For each possible answer to be selected the number and percentage of students who select and do not select each is given.

Logical

For each statement, the number and percentage of students who select Yes/True, No/False or leave the statement unanswered is given.

You can also get a listing of all answers to any one question in the Answers report. If you need a more detailed version of this report, you can use the Report Generator, an add-on to Question Mark. This allows you to obtain analysis reports across several answer files, giving graphical analysis, and allowing cross-correlation between questions.

10.3.7   Corrected question paper report

The report is designed for you to give back to the student as a record of doing the test.

```
Corrected answers (set number 1) in file "Geog".
Student: "John".

  Title : Geography test. 7 questions asked.

  Test occurred at 16:19   8.11.90 and took 1 min,16 secs.

Question number 1 :

    What is the capital of Italy ?

Student answer : Rome
Correct.

Score :   5 out of 5

.....................................
.....................................

Question number 7 :

    One, and one only, of these cities is a capital city. Which one ?

Student answer :
Calcutta

Correct answer :
Bangkok

  Bangkok is the capital of Thailand.
Score :   0 out of 5

Total score is 46% (16 out of 35 points).
```

Figure 10.6   Part of example Corrected question paper
                   report corresponding to Figure 10.1

Like the Full report, you can get this report for one or all sets
of answers. The report requires the exact same version of the
question file as was used to ask the test to be on the same
directory as the answer file. If changes have been made to the
question file, or it is not available, then this report is not
possible. If you have problems getting this report for all sets of
answers because of this, you may still be able to get it for
some sets of answers, by selecting them individually.

The report covers the questions in the order the student
answered them (which could be different from the order in the
question file and other answer file reports, if the order is
randomised). For each question, it gives the question wording,

the student's answer, and, if the question is marked, the correct answer (and a reason if one is defined). The scores for each question, each topic, and the total score are also given. Questions not asked of the student (eg if the student escaped or branched over them) are not included.

The report assumes that, for all marked questions, the highest scoring answer is "correct"; this may not apply if you have used special marking or evaluation questions, and the report may be not always be suitable for you to use.

10.3.8   Brief corrected question paper report

The Brief corrected report is just like the corrected question paper report, except it is shorter. It is useful when the full corrected report is too long. The Brief report also has a header portion which fits on one screen at the start of the report, and summarises the student's score.

```
            Student : John
            Title : Geography test
            7 questions asked.

       ******************************
       *                            *
       *   Your score is 46%.       *
       *                            *
       ******************************

   Question file "Geog".  Student file number 1.
   Test occurred at 16:19   8.11.90 and took 1 min,16 secs.
```

Figure 10.7   Header page of Brief corrected report

10.3.9   Statistics report

The Statistics report looks at all answers to questions in one test, and produces some statistics on the answers. These

statistics can be useful in evaluating the effectiveness of questions in the test.

```
Statistics report of question file "GEOG" in answer file "Geog".

Question     No. of answers      Facility          Discrimination
   1             114              0.947              -0.336
   2             114              0.158               0.173
   3             116              0.224               0.307
   4             114              0.526               0.53
   5              96              0.288               0.807
   6              98              0.388               0.395
   7             114              0.211               0.339
```

Figure 10.8   Part of a Statistics report

For each question in the test, the report contains three numbers.

No. of answers

This is the number of students who have answered this question. Sometimes this will be the same for all questions, and sometimes it can vary for different questions, depending on whether questions were selected at random, and whether students have passed over or otherwise left unanswered some questions.

The facility and discrimination figures will be most valuable to you when there are lots of answers to a question, as then there is a good chance that the results are representative.

Facility

This is the level of difficulty of the question, from 0.0 to 1.0. A facility of 0.0 means that the question is very hard (no-one got it right); a facility of 1.0 means that the question is very easy (no-one got it wrong).

Usually, questions are most useful if they are neither too easy or too hard. A very easy question is answered correctly by

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everyone, and so doesn't help you measure performance.
Similarly a very hard question is answered correctly by very
few people, and so adds little to your measurement.

In the example in Figure 10.8, question 1 has a high facility,
which means it is easy and question 2 has a low facility, which
means it is hard.

The definition of the facility is calculated as the average score
for the question divided by the maximum achievable score. It is
not available (*N/A*) for unmarked questions, questions where
the maximum score is zero or negative, or for answer files that
have been converted from previous versions of Question Mark.

An ideal facility is 0.5, which roughly means the question is
answered correctly by half your students. You may want to
consider removing questions from the test that have facility
more than 0.75 or less than 0.25. These questions are less
effective in differentiating students than middling questions.

Discrim-
ination

This is the statistical correlation of the question score and the
test score, from -1.0 to +1.0. A high correlation (close to
+1.0) means that the question is measuring the same thing as
the test. A low correlation means that there is little correlation
between people getting the question right and people getting a
good score in the test. A negative correlation means that
getting the question right correlates with getting a bad score
for the test.

In Figure 10.8, question 1 has a negative discrimination,
which means that people who get this question right are less
likely to get a high score for the test than people who get it
wrong. Question 5 has a high discrimination, which means it
has good correlation with the test score.

For example, if you have a test on a serious subject, and

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include one question on football. you would expect that the discrimination on the football question would be low. People who get it right are no more likely to do well at the other questions than people who get it wrong.

The discrimination is calculated using a standard statistical method (the Pearson product-moment correlation). This method is not reliable if students get negative scores for questions or the test; discrimination values in such cases are marked with an asterisk to warn you of this. In some unlikely circumstances, the discrimination for a question will not be calculable, and you will see *N/A* on the report for this question.

Questions with a discrimination of less than 0.25, or with a negative discrimination have poor correlation with the test score. Students who answer them well do not necessarily do well in the test as a whole. You may wish to consider removing them from the test, unless there are other reasons for having them in.

If the facility is extreme (close to 0.0 or 1.0), then the discrimination will not be that valid, and you should not consider its value as too important.

For more information on interpreting the facility and discrimination, you should refer to a reference book on statistics and assessment.

You should temper any interpretation of the Statistics report with common sense. You may be doing things in a particular way for a particular purpose, and you should not necessarily take notice of the calculated facility and discrimination figures.

However the figures will be a useful guide in most circumstances. And even if you are unhappy at looking at the absolute values, it will be interesting to compare the relative

values - to look at the facility or discrimination of one question as compared to another.

10.4   Output of reports

10.4.1   Output to screen

Whatever report type you have chosen, you then choose where to output it to. You can output the same report over and over again (with different or the same output methods). The output menu offers the choices of **Screen**, **Disk** and **Printer** output. To end output of this report, either select **Finish** (which will return you to the Directory screen), or press ESC to choose another sort of report.

Reports are shown on the screen in pages of 20 or so lines. Except for this smaller page size, what you see on the screen is identical to what you would get on a printer or in a disk file.

After each page except the last, the message **Press any key to continue, or ESC to abandon listing** appears in the command area. If you press ESC, the report listing will stop; pressing another key gives you the next page. At the end of the report, the message **Report to screen finished** appears, and you press ESC to continue.

It is often a good idea to view reports on the screen, to check they are what you want, before sending them to the printer or disk.

10.4.2   Output to disk

Output to disk is to a text file. This is an ordinary (ASCII) file

that can be accessed by other programs. (Note that normal Question Mark question and answer files are encrypted and will appear as gibberish to any other program.)

Example reasons for wanting to output a report to disk are:

● to print it using the DOS (background) PRINT command;

● to analyse the data using your own programs;

● to edit the report in a word-processor (for example to change the format of a question paper, or to spell-check your questions).

After selecting the **Disk** option, you are asked for a file name. This may be any legal file name (up to 8 characters). It will always be given the extension .DOC and placed in the current directory. For example if you type in "TEST", the computer will store the report in a file called TEST.DOC.

If you choose a file name that already exists, you are asked whether you want to delete the old file or to append the new report to the old file. If you append the data, then three blank lines are written to the end of the old file to make a break between the previous report (or data) and the new one.

While the report is being written to disk, the message **Writing to disk - press 'A' to abandon** will appear on the screen. If the report is short, this message should only flash up briefly. If you want to halt the report, press "A"; the report will be stopped and the message **Report abandoned** put at the end of the (partially written) disk file.

In case you need to know the exact format of the ASCII file produced, it is as follows. Each line is at most 80 characters long, and lines are separated from each other by the characters carriage return (13) and linefeed (10). The file ends with an

end-of-file character (26).

10.4.3   Output to printer

Reports to the printer are sent via DOS (using the standard handle 4 mechanism). This will print on most computers and computer networks without any special action from you. On networks or computers with unusual printer configurations, you may have to set up DOS to let Question Mark print. If you cannot do this, then you will have to send reports to disk, and then print them using DOS.

Different printers require data to be sent in different ways. Question Mark is by default set up to work with most common PC printers, but if you find that reports will not print, or that there are too many or too few lines per page, or have other problems, then you will need to change the way the printer is set up. You do this by amending the setup file, described in section 12.2.

While Question Mark is printing the message **Printing - press 'A' to abandon** appears on the screen. If you press "A", Question Mark will stop sending the report to the printer (though it will not clear the printer buffer if there is one).

10.5   Problems when reporting on answer files

Reporting, especially on large answer files, can be a major data processing task. A question file can have up to 500 questions. An answer file can have up to 999 sets of answers, each one with up to 500 answers in it. Thus an answer file could have in theory up to half a million answers in it. Reporting on such a file will stretch your computer (and quite possibly your patience and paper stocks) to its limits. Don't worry if

reporting seems quite slow.

Some solutions to possible problems that can happen while reporting are given below. See also the trouble-shooting Appendix.

Shortage of memory

Answer files can be larger than the available memory. Also for some report types the computer needs some memory to build up data to be able to make the reports, leaving less memory to use to store the answer file in. If the computer cannot fit all the answer file in memory, it will keep some on disk and some in memory. Sometimes even this is not good enough, and the computer will give you an error message, saying it has run out of memory.

Disk reading problems

Question Mark does not normally read in the whole answer file from disk at one go, but reads in each set of answers as it needs them. Thus if there are disk problems in the file (which should not normally happen), it may be that you will be able to read and report on some sets of answers, but not others.

Incompat-ibilities between question and answer files

When answers are stored in answer files, the question file name is stored with the answers. If you subsequently edit a question file (and, for example, add some more questions) and then get someone to answer it so that the answers are stored in the same answer file, then there will be two sets of answers in the file purporting to come from the same question file but in reality coming from different ones.

For the Marks and Statistics reports, all sets of answers in the answer file that originated from one question file name must have originated from question files with the same number of questions. Unless this is true, you will not be able to make a report. (You will have to use the facilities of section 9.2 to

make a different answer file.)

For the Corrected question paper and Brief corrected question paper, the original unchanged question file must be available to produce the report.

For the Question analysis report, things are more complicated. You will always get a report, but some parts of it may be different to what you expect, if the sets of answers come from different question files, or the question file accessed while making the report is different.

If the question file available at the time of the report is different, Question Mark gives you a warning message saying that it does not fit. If the differences are minor (eg you have changed some of the question wordings), then the report is likely to be fine. If the differences are more major, then the report may be quite wrong. No damage will be done to your data files or to Question Mark: you may just get an unexpected report. If this happens then the best thing to do is to rename the question file to something different while you make the report, and make the report without a question file. Similarly, if the sets of answers come from different question files with the same name, the software copes as best it can.

The best way of avoiding these types of problems is not to change or edit a question file after you have let students answer it, or if you do change it, to rename it.

11. Protecting your data from other people

11.1 What protection do you need?

11.1.1 General concepts

Most of the time you will probably not mind who sees your files. However sometimes - for example, if you are using Question Mark for exams - you may wish to ensure that students or others cannot get at the questions or answers unless you let them.

This Chapter tells you how to use passwords in Question Mark to protect your files, and describes some other security issues. Complete security is not possible: if the CIA wants your data, then they can probably read it from 100 yards away as you type it in! Your students will not (we hope) have such fancy equipment.

You read a lot of stories in the media about "hackers" breaking into major computer systems. It's not that the computer systems are badly set up; it is just very difficult to prevent unauthorized access to any computer on a network or connected to a modem to allow use by users elsewhere. If you are very concerned to keep your data secret, don't keep it on a hard disk on such a computer; either keep your files on floppy disks that you lock away, or on a standalone computer that others cannot access.

Another important security issue is that for complete security, you must invigilate computer exams, just like for paper ones. If you do not have someone physically watching students, then they can look at reference books or other people's screens, and

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the computer cannot prevent this!

Take care not to let enthusiasm for security override the need to back-up files. You are far more likely to run into problems because you have not taken a good back-up, than you are because other people are trying to illicitly access your files. Try to keep copies of important files in more than one place. Consider what would happen if there was a fire, your computer was stolen, your hard disk crashed, or you deleted the wrong file.

11.1.2   Specific problems

In some respects computer exams are more secure than paper tests. For example a test can be encrypted so that even if someone steals the "exam paper" (ie the test file), they probably cannot read it. All Question Mark files are encrypted automatically. And each time the test is given, it can be randomised, so that if different people do a test, they have different questions, and so will have problems comparing notes.

However whereas the security issues in paper tests seem obvious because of long experience, the issues in using computers are harder because they are less familiar. Here are some things to watch out for when delivering computerised exams.

Students trying to run tests they should not

If you want to stop students running a test until you are ready, you should protect it with a student password. The delivery software will not run it unless this password is quoted. You should also protect it with a (different) teacher password so that people also cannot run it from the Question Mark main software. Section 11.2 below explains passwords.

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You can get a lesser degree of protection by date barring the test or stopping it (see section 11.2.2 below), but these measures can be sidestepped in some circumstances.

People being
able to look
at question
files illegally

Question files are encrypted. If people try to look at them with other programs, they will see gibberish. If you protect a question file with a teacher password, then only people who can quote this password can look at the file from the Question Mark main software.

Thus, you can completely protect your question files from being read by unauthorised people. Any encryption scheme can be broken if enough time and ingenuity is spent on it, but it is unlikely that your students will do this. To minimise the possibility, you may want to try to prevent access to the Question Mark main software, and indeed to minimise access to all Question Mark files.

Graphics files can be encrypted by converting them to .QMG format (see Chapter 7). This will prevent easy access by other programs, but the encryption algorithm is not as secure as for question files. There is also no password protection on graphics nor on student help files, so anyone with the Question Mark main software can access these files.

Checking a
student's
true identity

Obviously it is vital to know who took a test. By default, students can enter any name into the system they want; this includes nonsense names like "Mickey Mouse", or one person claiming he/she is another. There are three measures you can take against this.

- Using the student validation facilities of Question Mark (see section 12.7), you can define a list of valid student names. You can prevent anyone from doing a test unless they enter one of these names. You can also define a

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password that each student must quote to prove their identity.

- Sometimes you may know the names of students in another way, eg if each student has to log on to your menu or network system. In such cases you can define the name of the student using the /S command line parameter (see section 8.4.1) from outside Question Mark. Thus, you can check student identities in another program.

- These methods will not prevent one student from giving their password and name to another. The only guaranteed method of identity checking is to have someone physically check that the student's own name is entered into the software. The student name is shown on the status line while the test is answered, enabling someone wandering around a room to see and check it.

People doing a test more than once

If you have set it so, then every time someone does a test, their answers are saved to disk. This means that if someone does a test twice, then you will see this in the answer file. However they may be able to evade this by deleting the answer file (from DOS) after doing the test, if they are unhappy with their results, or by turning off the machine (or re-booting) before the answers are saved.

Physical invigilation is one way of dealing with this problem. Another way is using the \!** parameter (see section 8.4.1). This deletes the question file after it is run, so that it can only be answered once. An astute student could make a copy of the question file before it is deleted, but this command line switch can be a useful tool to prevent people from doing a test twice.

Wrongdoing
while a test
is running

There are many things a student could theoretically do while a test is running (eg change the system time to have a longer time limit). One way of minimising such possibilities is not to run tests in environments where users can switch tasks (eg Windows). If the student cannot run another program, there is little he/she can do except answer the questions.

Illegal access
to answer
data

Providing you set it up so, answer files are protected by passwords in the same way as question files. They are always encrypted to prevent access by other programs. There is no protection within Question Mark against deleting answer files, but it should not be possible to look at or change them, unless you quote the password.

Using these measures will make it harder for people to cheat at your computer tests. If someone is prepared to spend sufficient time and trouble, they will invade any security system. But if you protect all your files with passwords, you will be most unlikely to run into problems. And if you protect the files and physically invigilate all access to them, it will be very, very hard for students to do anything except answer your questions in the way that you have defined.

11.2   Using passwords to protect access to files

11.2.1   What are passwords?

Under normal circumstances, anyone with the Question Mark delivery software can answer the questions in a question file (even if you mean them to be next week's test and to be secret for the moment). Also anyone with the Question Mark main

software can read and change any question or answer file. The best way to protect against these kinds of problems is to assign passwords to files, so that the password must be quoted before the file is accessed.

A password is a string of up to six characters, defined by you. You can use any displayable characters for the password (letters, numbers, punctuation symbols etc.). Upper and lower case characters are treated the same. Example passwords are "FRED" or "123456".

It is sensible to choose passwords that people will not guess (eg do not use your partner's name). It is also sensible to change passwords regularly and not to write them down.

Student passwords protect question files against access by people using the delivery software. They do not protect against people using the Question Mark main software. If you assign a student password to a file, then no student can run the questions in the file unless they can quote the password. Similarly the file will not be able to be called up as the next question file automatically by the computer, unless you put the password in the file calling it while creating it (see section 5.4.4).

Teacher passwords protect all access to a file except students answering questions from it. If a file is protected by a teacher password then no-one (including you) can read the file (or edit, report on it etc.) unless the password is quoted. A password does not protect the file from being deleted, copied or renamed.

The main software remembers the last six passwords you have quoted, and normally only asks you for the password the first time you need it. If you use passwords, be careful to exit Question Mark before letting someone else use it, or else they will have access to files where Question Mark has remembered

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your password.

There is no way you can access a file protected by a teacher password if you do not know its password. If this happens to you and you are desperate, and can convince us you are a bona fide user who is entitled to access the file, then contact us - we may be able to help you.

11.2.2   Setting question file passwords

You define and change passwords for a question file, by selecting it as current on the Directory screen, and pressing F2 and selecting the *Password* option. If you do not see the *Password* option when pressing F2, it means that you have not installed the software properly - refer to Chapter 2.

You define passwords by filling in boxes in the usual way (see section 5.1.3 for a description of how to do this). Pressing F10 saves what you have done, and pressing F9 or ESC leaves without saving. Figure 11.1 shows an example screen.

Figure 11.1   Setting passwords for a question file

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You can set the following boxes on this page.

Password protect from main software ?

This box defines whether there is a teacher password set for this question file. If you set it 'Y', then a **Password** box appears to the right for you to define the password. In the example in Figure 11.1, a teacher password of PROPER is set. To edit or look at the file, you need to quote this password.

Password protect from delivery software ?

This box defines whether there is a student password assigned to this question file. If you set it 'Y', then a **Password** box appears to the right for you to define the password. See section 11.2.1 above for what student passwords protect against. To protect a test from being tried out from the main software, you need to set a teacher password.

Password protect answer file created ?

This box defines whether there is a teacher password assigned to an answer file created by this question file. If you set it 'Y', then a **Password** box appears to the right for you to define the password. In the example in Figure 11.1, a password of GA5612 is set.

If you protect an answer file in this way, any answer file created will be assigned this password. If answers are saved to an already existing file, then it will be allocated the password if it currently has none. If it has a different password already set, then the software will refuse to save the answers. (Otherwise security could be impaired either on the new or old answers.) Thus all question files saving answers to the same name answer file need to use the same password for that answer file.

If you do not protect an answer file with a password, then there is nothing to prevent anyone using the Question Mark main software to look at it, or even to amend it using the

answer file editing facilities described in Chapter 9.

Stop test being asked except from another ?

If you set this, then the delivery software will only run the test if it is called up from another question file. The test will not be included in the list of tests the student can choose from, nor will it be able to be run from the command line.

This is useful if you have created tests that branch to other tests, and you do not want students to be able to go to the later tests before the earlier ones. However, setting this box does not stop tests being tried out from the Question Mark main software.

Check all graphics files are displayable before run test ?

If this box is set 'Y', then the test will only be run if all graphics files referenced by the question file are available and displayable on the computer. If set 'N', then the test will still be run even if some graphics files are not present or cannot be displayed. See section 8.4.3 for more details on this.

Stop test being asked until PC clock reaches a date ?

You can set a date before which the delivery software will not run the test. The software reads the current date from DOS, and if the date has not been reached, then the software will leave the test off the list of tests, and will refuse to run it. This is not failsafe, because it is possible to reset the system date with DOS. If you can prevent this or are unconcerned by it, barring a test by date can be a useful security measure.

In the example in Figure 11.1, the test is not allowed to be run until 17th May 1994.

To set the date, you use the mouse or arrow keys to select the day, month and year. To change the date once you have set it, you turn the box off and on again, and you will then be able to amend the date details.

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11.2.3   Setting answer file passwords

For an answer file, you can only set whether there is a teacher password, and what it is. The password applies to the whole file, ie to all sets of answers in it.

You should usually set the teacher password for an answer file by the question file settings, as described in section 11.2.2 above. Once the file has a password, it can only be changed by using the Question Mark main software, not by saving more sets of answers.

You do this by selecting the answer file on the Directory screen, pressing F2 and selecting **Password**. You then set the password in the same way as for question files. Figure 11.2 shows the screen when setting an answer file password.

Figure 11.2   Setting an answer file password

12.   Advanced facilities

12.1   Overview

12.1.1   The Directory screen F2 menu

This Chapter describes the advanced facilities available in Question Mark Professional. These are available as menu items after pressing the F2 key from the Directory screen.

When you press F2, Question Mark searches the disk for Question Mark program options in .OVL files to run. If you do not see a menu item that you expect to see for a question or answer file when you press F2, you probably have not installed the software correctly. You should check that all the Question Mark .OVL files are in a directory that Question Mark can find as described in Chapter 2.

The standard F2 menu items are as follows.

Utility

This is a menu of utility options, described in section 12.1.2 below.

Graphics

This option lets you view graphics files, on this and other directories, as described in section 7.2.

Password

For a question or answer file, this lets you set or amend passwords for the file, as described in section 11.2.

QPublish

For a question file, this lets you publish a test or make a

student disk, as described in section 8.1.3.

Bank

For a question file, this lets you call up the question banking software, to create a new question file by choosing questions randomly from several other files. Question banking is described in section 12.8.

Other menu options can also appear if you are using add-on software.

12.1.2   Utility options

When you select **Utility**, you have a choice of six menu options, as follows.

Setup

Choosing **Setup** lets you edit the Question Mark setup (or configuration) file, QMARK.CFG. This file defines the colours used on the screen and other information about how the software runs. See section 12.2 for a description of the setup file, and how to edit it.

In/out

Choosing **In/out** gives you further menu options, depending on what kind of file is highlighted in the directory screen, as follows:

- **Import** allows you to import questions from an Ascii text file, making a new question file. Importing is described in section 12.5.

- **Spread** (for an answer file) lets you convert data in the answer file into spreadsheet (.WKS) format, suitable for

analysis by a spreadsheet program such as Lotus 1-2-3 or Excel. Exporting to spreadsheet is described in section 12.3.

- **DBase** (for an answer file) lets you convert data in the answer file into database (.DBF) format, suitable for analysis by a database program such as dBase or Paradox. Exporting to database is described in section 12.4.

- **Update** is used to update question or answer files saved in the Version 2 Question Mark format into files usable with the Version 3 software. You use it if you are updating from Version 2 to Version 3. You can also use it if you have created material using Question Mark for Macintosh (Release 1), which uses the Version 2 file format, and want to convert it for use with this version of the software. See Appendix B for more details on file conversion.

- **Revert** is the reverse of **Update**, and is only available for question files. It takes a Version 3 question file and converts it to a Version 2 question file (losing some information). You might want to do this for compatibility with earlier versions, or to export the test to the Macintosh. See Appendix B for a description of this.

Collate

Choosing **Collate** lets you copy sets of answers from several answer files into one answer file. Answer file collating is described in section 9.3.

Macros

Choosing **Macros** lets you view any defined macros or smart-keys. You can record a sequence of key-strokes as a "macro" within Question Mark; then any time you want to use the sequence, you can do so by pressing just one key. How

macros work is described in section 12.9.

Help

Choosing **Help** lets you create student help files. You can use these to give a page of extra information to students after they finish answering a question. Student help is described in section 12.6.

Validate

Choosing **Validate** lets you define a student validation file, that contains a list of allowed student names (and passwords). You can set that a question file is only allowed to be asked if someone types in a valid student name. This helps to prevent unauthorised people from answering a test, and to ensure you have the correct name of everyone who has answered it. Student validation is described in section 12.7.

12.1.3   Available add-on software

Some add-on software is available separately to Question Mark Professional. Contact Question Mark Computing or your local distributor for full information, and the latest list of add-on software. If you need something that is not on this list, then please enquire; it may be possible to write it for you, or to suggest a way of doing what you want with some other facet of the software.

Multimedia editor

The Multimedia editor lets you call other programs from within Question Mark tests. When the Multimedia editor is installed, you can access it by selecting **MMedia** from the F2 menu.

Using the editor, you can define program calls to be made before, during and after delivering questions (and introduction and final screens). You can call almost any DOS program. This

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includes sound, video, or animation programs and also ordinary programs: word-processors, spreadsheets, scientific software, and programs written by yourself.

There are facilities to pass information (eg answers or scores) from Question Mark to the called programs, and you can also let students repeat called programs (eg repeat a sound clip). If you want to do something non-standard with Question Mark, there is often a way of doing it with the Multimedia editor.

Report Generator

The Report Generator is a reporting add-on. It is a much more powerful version of the Question analysis report described in section 10.3.6. When installed, the Report Generator is available by selecting the *Analysis* option from the F2 menu.

The Report Generator allows you to define report contents by setting up a report definition file. You can use this file to make a report on as many answer files as you want on one directory. You can display charts of answers, and you can also cross-correlate answers from one question to that of another. The Report Generator is especially useful in questionnaire analysis.

Standalone analysis software

If you are delivering tests at a distance, you may want people at the distant offices (eg branch managers) to be able to access answer files, and report on them. But you may not want to give them the full Question Mark Professional software that permits them to amend question files.

Standalone analysis software is available for use in such circumstances. Please enquire for more details.

Non-English language software

The Question Mark delivery and main software have been translated into several languages. Translations of the delivery software let you author in English, and deliver tests (including

the on-screen instructions) in the other language. Translations of the main software let you author and deliver in the language. This software is suitable for use in non-English speaking countries and for use in language teaching.

Please enquire about current availability of languages. At the time of writing this manual, translations of some or all of the (Version 2) software are available in Afrikaans, Dutch, Finnish, French, German, Italian, Norwegian, Portuguese, Spanish, Swedish and Turkish.

12.2   Configuring Question Mark : setup files

12.2.1   How setup files work

Setup files are not essential to the operation of Question Mark. You can use Question Mark without them; however, if some of the standard settings for certain things (eg the colours on the display) do not please you, you can change them by defining a setup file. As well as the display colours, the setup file defines the way Question Mark is to work with a printer, and some of the details of how the delivery software runs.

Every time the Question Mark main or delivery software run, they look for a setup file (called QMARK.CFG) on disk. They first look in the current directory and drive; if they do not find it there, they look at the DOS environment to see if you have defined the string "QM" to be a path, and if so try that path; lastly they try the directory \QMARK3 on the default drive, if there is one. If a setup file is found, it is used; otherwise the software uses the default settings built into Question Mark. See Chapter 2 for how to define the environment variable QM, and for more explanation of this.

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You can arrange to have different setup files for different users or for different tests. Generally it is best to have one standard setup file (which you put in directory \QMARK3 or in some other central directory pointed to by the QM string) and then override it where you need to, with a setup file in the current directory.

12.2.2   Editing the setup file

You can choose to create or edit a setup file from the Directory screen by pressing F2, selecting *Utility* and *Setup*. On selecting Setup you see the setup information on two screens. Figure 12.1 shows examples of the screens. You move between the screens using PgUp and PgDn, or by clicking in the boxes about changing screen.

When you press F10, the setup data is saved to disk (even if you have made no changes) to a file named QMARK.CFG. Which directory is used depends on which menu item you select after pressing F10.

Current

Save the setup file in whatever directory is current (as on the Directory screen).

Specify

Type in the name of the path to save the setup file in.

Previous

If the setup file already exists, and you are changing it, you will see on the screen the directory that the setup file comes from. Selecting *Previous* saves the file on this directory.

```
Delivery software data
          Use sound ?   [Y]      Assume zero points  [N]    [Press PgDn to set
                                 means zero % ?              screen colours  ]

Ask in usual way
multiple choice ?   [Y]

.EXE file name of                Usual student
delivery software  [      ]      group name   [TRAINEES      ]

         Recycle                 Use special wording
    student name ?  [N]          to ask student name ?  [Y]

          Wording  [Please enter your company ID code          ]

Printer codes
 Setup printer                           Line end   Page end   Lines/page
[0][0][0][0][0][0]                       [13][10]   [12][0]    [60]
```

```
Main area colours                                    Colour numbers
   Normal         Highlight      [Press PgUp to set   1 = Black
                                  delivery software data] 2 = Blue
[8][2][N]      [2][8][N]                              3 = Green
                                                     4 = Cyan
Fore Back Br?  Fore Back Br?                          5 = Red
                                                     6 = Magenta
Question       Some           Student                 7 = Yellow
wording        answers        feedback                8 = White
                                                     Br = Bright
[8][N]         [8][N]         [8][N]

Fore Br?       Fore Br?       Fore Br?

Command area colours
   Normal         Highlight      Error          Status line
[8][2][N]      [2][8][N]      [7][2][Y]      [8][1][N]

Fore Back Br?  Fore Back Br?  Fore Back Br?   Fore Back Br?
```

Figure 12.1   The two screens while editing the setup file

On saving, the new setup file is used immediately to change the
way the software works (eg the colours used on the display).
However when you run the software in future, this setup file
will only be used to set up Question Mark if it fits the directory
and drive criteria in section 12.2.1 above.

12.2.3   Setting delivery data

When editing the setup file, you can set the following boxes relating to the delivery software. A few also apply to the Question Mark main software.

Use sound?

This box defines whether sound is used in Question Mark. The main use for sound is that a beep is made in some circumstances in the main and delivery software, when an unexpected (or illegal) key is pressed. The default setup has sound on; if you find this annoying (or if your students make too much noise), you can disable it by setting sound off (the box to 'N').

Assume zero points means zero % ?

This box defines how percentage scores are calculated when negative scores are being used. There are two options - a score of zero points always being 0%, or else the minimum possible score being 0%, even if it is negative. See section 5.4.1 for more details on this.

You should be *very careful* about changing this box as it will affect all percentage calculations by software that uses this setup file. For example, if some tests are answered with one setting and some with another, and the answers combined in one answer file, then the different scores will not be consistent with each other - which could at best be very confusing, and at worst highly misleading.

If you do change it, make sure that the setup file with the change is accessible to both the main and delivery software, as otherwise the percentage scores displayed may vary.

Ask in usual way multiple choice ?

The usual way multiple choice questions are answered is for the student to select a choice with the arrow keys or mouse,

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and then to click on the **Accept** button or press F10.

If you set this box to 'N', then you can change this so that students answer multiple choice questions by pressing a number or letter key (without needing to press another key to accept the answer). Another box appears on the screen for you to decide if numbers (1-6) or letters (A-F) are to be used. This may be useful if your tests consist mostly or entirely of multiple choice questions, and you want students to be able to answer rapidly, or if a mouse is not available.

.EXE file name of delivery software

This box defines the name of the delivery software for use when publishing a test (see section 8.1.3). If you leave it blank, the standard delivery software, file S.EXE, is used. If you are using a different named delivery software file, you should put its name here so that the publishing software can find it. For example, if the file you are using is SSVE.EXE, you put "SSVE" in the box.

Usual student group name

If you set this box to a group name, the delivery software will save all answers with this group name. See section 9.2.3 for more information on groups.

You can also define the group with the /G command line switch or while editing the answer file. Defining it in the setup file is useful if you can have different setup files for different circumstances.

Recycle student name ?

This is whether you want to recycle (or re-use) the student's name within the delivery software once it has been entered, or whether you want to re-ask it in every test in case a different student has taken over. The default setup is not to re-use the student name; you can easily change this if you wish to.

Use special
wording to   The standard wording used to ask the student name is *"Type*
ask student   *your name (up to 16 characters) and press Enter"*. If
name ?   you want to use different wording, perhaps because you want
                        to tell the student to enter the name in a particular way, you
                        can do so by setting this box to 'Y'. You can then fill in a
                        Wording box with a message of up to 55 characters to be
                        used.

12.2.4   Setting printer codes

Question Mark drives the printer via DOS (as described in
section 10.4.3). The software sends codes to the printer as
described below. These codes are set in a way that works for
most printers, but you can change them if you need to.

Setup printer
                        The first time Question Mark sends data to the printer, and
                        after any error, the initialisation code is sent. The default setup
                        is for no initialisation code. With some printers, you can use
                        setup codes to define the fonts or paper size to be used in the
                        report.

                        There are six boxes for this code, allowing you to define a
                        code up to six bytes long. Each box can contain from 1 to 255
                        if it is a byte to be sent and 0 if it is not (you cannot send code
                        0). You should look up possible codes in your printer manual.

Line end
                        After every line a code is sent to the printer (telling it that this
                        line is over and to start a new one). This is set by default to be
                        carriage return and linefeed (13, 10). A few printers only need
                        one of these, and if you find that Question Mark prints a blank
                        line between every real line, then you should change these
                        codes so that the right code (see your printer manual) is sent.

There are two boxes for this code, allowing you to define two byte-sized codes. Each box can contain from 1 to 255, or 0 for no code. You might need to change the code to 13,0 or 10,0 if you only need one of carriage return or linefeed.

Page end

At the end of a page a code is sent. The default setup for this is an ASCII form-feed (12), which will work for most printers. Setting this code is done in the same way as setting **Line end**.

Lines/page

There is also a box to define the lines per page on your printer and paper. If this is set to zero (or any number less than 20), this means that Question Mark is to send out all its output line by line, ignoring page breaks. If it is another number, then Question Mark assumes that this is the number of lines to be put on each page, and puts a page end after this number of lines. The default figure for this box is 60 lines, but you can set it to whatever you need for your printer and paper size.

If you need to set up your printer in a way that cannot be done with Question Mark, you will have to do it outside Question Mark, or save your reports to disk and print them out with another program.

12.2.5   Setting colours

You can define the colours used on the screen during Question Mark, in the setup file. These colours apply throughout the Question Mark main and delivery software.

However if you define colours in a Video page for a test, then these colours are used instead of the setup file colours when delivering or trying out this test. See section 7.5.2 for how to

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set a Video page.

If you do not define colours, then the default colours are used. If your display has a monochrome display adaptor, Question Mark ignores the colour selections in the setup file, unless they refer only to the colours black and white.

The way you define colours in the setup file works exactly as when setting the colours in the Video page, as described in section 7.5.2.

12.3   Exporting answers to spreadsheet format

12.3.1   Converting to spreadsheet format

The spreadsheet conversion facility converts Question Mark answer files into files in Lotus 1-2-3 format, suitable for spreadsheet programs. To use this facility, you must own a spreadsheet package that can read Lotus 1-2-3 .WKS files. Almost all popular spreadsheet packages, including Lotus and Excel can do this, as can many database and statistics packages.

Using the software you convert either the answers or the scores from a Question Mark answer file into a spreadsheet file. You can then use the powerful analysis and graphics facilities of your spreadsheet to manipulate student answers and scores to achieve your assessment needs.

Having selected the *Spread* menu option, you follow these steps:

1.   If the answer file is protected by a password, you are prompted to enter the password.

2. You are then asked for a spreadsheet file name. Type a
    file name, with or without a preceding path name. The
    extension .WKS is presumed or required. For example,
    you might type "GEOG.WKS" or "GEOG" or
    "C:\QMARK3\GEOG". This file is used to put the
    spreadsheet data in. If a file of this name already exists,
    you will be asked to confirm that you wish to overwrite
    it.

3. You then choose from a menu how you want the data to
    be converted, the choices being:

    Scores   a table of marks for each student for
                     each question.

    Answers   a table of answers for each student for
                     each question.

    XScores   as **Scores**, but with rows and columns
                     transposed.

    YAnswers   as **Answers**, but with rows and
                     columns transposed.

4. Assuming the conversion is successful, you then see a
    message saying so, and must press ESC to continue.

12.3.2   Using the spreadsheet files created

The data format used is Lotus 1-2-3 Version 1.0A. Most
commercial spreadsheets can read or convert from this format.
If you are using Lotus 1-2-3 itself, then you can read and use
the spreadsheet files created in the same way as files created by
yourself using the spreadsheet.

With some other spreadsheet programs, you may need to
undertake some additional conversion with your spreadsheet
package to read files. Look in your spreadsheet manual for
how to do it - it may be under the heading of "Importing files".

If there are answers from more than one question file in the answer file, only the answers/scores from students answering the question file that is first in the sets of answers is converted. The others are ignored. If you want to convert all the data in such a file, then you must first split it into several files (using the answer editing functions).

The numbering of the questions in the file is the same as the numbering in the question file (and the same as the numbering in answer file reports). The ordering of the students is also the same as the ordering of sets of answers in the answer file.

The worksheet created consists of some header labels and then one entry (a score or an answer) for every student and every question. In both types of conversion, if the question was not in the set of questions asked to the student (eg it was randomly selected out), then the position in the spreadsheet is blank.

12.3.3   Problems in spreadsheet conversion

If you seem to convert a file successfully, but you cannot read it from your spreadsheet, make a very small, simple answer file with a few questions and students, and try to convert this. Try converting both answers and scores, and try reading each file.

If you cannot do this, then the most likely explanation is some problem about accessing the right file. The utility creates a file with extension .WKS named by you, and you need to tell your spreadsheet program this file name in the right way (eg explicitly specifying the .WKS extension).

If you can read some converted files and not others, then very possibly you are running into some limitation of your spreadsheet program (eg the table is too large).

12.4   Exporting answers to database format

12.4.1   Converting to database format

The database export facility creates a dBase III compatible file containing most of the information in an answer file. In order to make use of this file, you will need to use a database package that can read dBase III files. Almost all popular commercial database packages (including dBase III, dbase IV and Paradox) can do this.

Using a database allows you to maintain records of answers, to produce customised reports and to sort and select answers according to a variety of criteria. A record is produced for each answer to every question containing a summary of both the test and the answer. Answers from more than one test can be mixed in a database and records can be kept of more than the maximum number of answers (999) allowed in an answer file.

Having selected the **Dbase** option you then follow these steps.

1.   You are asked for a database file name. Type a file name, with or without a preceding path name. The extension .DBF is presumed or required. For example, you might type "VAT.DBF" or "VAT" or "C:\QMARK3\VAT". This file is used to put the database data in. If a file of this name already exists, you will be asked to confirm that you wish to overwrite it.

2.   If the answer file is protected by a password, you are prompted to enter the password.

3.   If the export is successful, you will then see a message confirming this. Press ESC to continue.

12.4.2   Contents of the database file

There is a record in the database for each answer in the answer file converted. Each record in the database contains 20 fields as follows. The database field names (that you will see when you access the data from your database program) are the names in capital letters below.

The first 7 fields are fixed for all answers from one set of answer.

STUDENT   The name of the student giving this answer.

TIME   The time the test was taken in Hour:Minute format.

DATE   The date the test was taken in Day/ Month/ Year format.

TEST_NAME   The title of the test (20 characters).

SCORE   The total score in points for this student on this test.

MAXIMUM   The maximum score possible for this test.

MINIMUM   The minimum score possible for this test.

The next 11 fields refer to one answer by one student to a particular question in a particular test.

QUESTION   The number of the question in the test.

TYPE   The type of question, ie Choice, Number, Word etc.

ANSWERED   Whether the question was answered, passed,

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retried or not asked.

MARKS   The marks awarded for the question.

NUMBER   The answer as a number, used in numeric
                questions as the number that was given, and
                in multiple choice questions as the number of
                the choice that was selected.

TEXT_1 to
TEXT_6   These six lines of text contain whatever
                textual information is available from the
                answer. This varies with the question type.

The last 2 fields in the record are also fixed for all answers in
one set of answers. They have been added in Version 3 of
Question Mark and are kept at the end of the file to assist
people who are combining Version 2 and Version 3 exported
data.

QFILE_NAME   This is the file name of the question file used
                in the test.

GROUP   This is the group name of the set of answers.

12.4.3   How to use the database files

The files created can be read directly by dBase III and many
other compatible database and spreadsheet programs.

With some other programs they will need to be imported or
"adopted" and additional files, detailing such things as indices
and screen layout will be created. You will need to refer to
your database users manual for full instructions; these notes
can only give you a general guide.

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If you later produce a second database file of the same name, these additional files will need to be deleted or they may generate error messages as they do not match the new data. It is best therefore to use a different file name and either start a new database or merge the new database with the old one.

The database file contains a large amount of information, much of which may not be relevant to your needs. To reduce the size and complexity of your database you may "clone" it, producing a new database containing only the relevant fields or records.

Note that answers from more than one test may be merged into the same database. This gives great potential for using the database as a comprehensive record keeping system, with the ability to track students or trainees performance on a variety of different tests over a period of time and to produce a variety of reports and analyses on the data.

Bear in mind that the more data you collect, the more important a good backup procedure becomes. In short, every time you add records to the database, take a backup.

Database packages are among the most powerful and sophisticated of all PC software packages, and it is outside the scope of this manual to do more than outline some of the ways in which you can proceed. However, with the capability to export your data to a database, there is genuinely no limit to what you can do with your answer data.

12.4.4   Problems in database conversion

If you seem to export a file successfully, but you cannot read it with your database, make a very small, simple answer file with a few questions and students, and try exporting this.

Check also that your database is compatible with dBase III or

dBase III Plus, as these formats are not interchangeable with dBase II or IV. Check your database users manual for details about compatibility and any conversion needed.

12.5 Importing questions from Ascii text

12.5.1 Overview

This facility is a means of bringing in the text of questions from a plain ASCII text file. The purpose is to reduce the need to manually type in text which already exists in computer format.

The way the software works is that you prepare a file on disk with the questions in. This requires you to add in some formatting text to your data, eg to tell Question Mark which question is which, using your word-processor or text editor. You then can create a question file based on the questions in the text file.

You can only import multiple choice questions (and explanation questions). Once imported, you can change the question type to another type. Thus, you can import multiple response and other question types by importing them as multiple choice, and then editing the file to change them. The software sets the general pages of the test to standard settings, which you may need to edit later.

12.5.2 Preparing a text file for import

Text held in most computer formats can be imported to a Question Mark test - including word processor, database and spreadsheet files - as long as it can be converted to plain text or ASCII format. This is text which just contains letters,

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numbers, punctuation, spaces and carriage returns and no control or formatting information that may be used by the parent program.

Most programs have an option to output or export a file in this format and it may be described variously as ASCII, DOS text or plain text. The output from text editors such as are used from writing computer programs is already in ASCII format and will not need converting. But files from programs such as Word Perfect or Microsoft Word will need to be converted to ASCII format before they can be used.

Text to be imported needs to have some formatting marks placed at the beginning of lines to tell Question Mark where each question or answer begins and ends.

"?"   marks the start of question text.

"@-"   marks the start of answer text to be treated as an incorrect answer.

"@+"   marks the start of answer text to be treated as a correct answer.

"?"   marks the start of the next question text.

Any question text which is followed by two or more answers will be treated as a multiple choice question; otherwise it will be treated as an explanation question.

All text following a "?" will inserted into the question, with carriage returns converted to padding out with blanks to match the format used by Question Mark to present text. This is in lines of 72 characters. The text will be truncated to a maximum length of 7 lines totalling 504 characters.

To get the correct line spacing, you should format your

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question wordings to a maximum of 72 characters per line before importing them. For example, text formatted to 80 characters per line will be broken up. To avoid this, set the right margin of your editor or word processor to 72 characters.

The question marker "?" will only have effect when it is the first character on a line, and may thus be used within the question or answer text.

All text following a "@" will be inserted into the answers, truncated to the maximum length of one or two lines, each of 70 characters. If there are more than four answers, then each can only be one line. If the "@" is followed by a "+", this will indicate that this answer is a correct one, if it is followed by a "-", this will indicate that the answer is an incorrect one.

If only one answer is given, it will be ignored and the question treated as an explanation only question; if more than 6 answers are given, the 7th and subsequent answers will be disregarded. If no answer is marked as correct, or all are marked as incorrect, then the first answer will be deemed to be correct; if all answers are marked correct then the first answer will be deemed to be incorrect.

12.5.3   Using the utility to import text

As described above, the text is imported from an ASCII file. This must have a .DOC extension, and be on the current directory.

When the *Import* option is selected, the screen shows the .DOC files available for importing. You use the mouse or cursor keys to select a file and the Enter key to start the import. The resulting question file is given the same name as the .DOC file. If a question file of this name already exists, you will be asked if you wish to overwrite it with the new

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question file.

The import process will continue on errors whenever possible. Questions or answers that do not fit the format as described above will be truncated or omitted. Only disk errors, such as a missing disk or file, or a file with no questions in at all will cause the process to terminate without producing a question file.

After importing questions, you will want to review and edit them, to check that they have been imported correctly. You may also want to change the marking or general pages. The importing facility does not let you create a complete question file ready to give to your students, but it does do most of the work of creating a question file. You just need to go through the file, and deal with any "rough edges".

12.5.4   Example text file

The following example text file gives you a concrete example of a text file for import. This file is on the distribution disk as file IMPORT.DOC.

```
?This is question number one, it is not a long question but shows that
you can have a question mark ? in the text as long as it is not at the
start of a line.

a- this answer is defined as a wrong answer
a+ this answer is defined as a right answer
a an undefined answer, it will be assumed to be a wrong one

?This is question number two, it uses two line answers
a wrong this is the first line of the wrong answer
this is the second line of the wrong answer
a+right this is the first line of the right answer
this is the second line of the right answer
thi  is the third line of the right answer    it will be omitted.

?This is question number three.
It is an explanation only type question and shows what happens if your text is
formatted to 80 characters per line rather than 72.

?This is question four and shows that answers can be placed on one line.
It also shows that if all answers are undefined, the first will be taken
as the correct one.
aone@two@three
```

```
?Question five has too many answers, the last two will be omitted.
As they are all defined as correct, the first will be taken to be wrong.
@+one
@+two
@+three
@+four
@+five
@+six
@+seven - this will be omitted
@+eight - this will be omitted

?Question six has too few answers and will be treated as an explanation
only with no answers
@-one

?Question seven is a text question which is too long :
line 2
line 3
line 4
line 5
line 6
line 7
line 8 - this line will be omitted

?Question eight shows that you can only have two line answers when there
are four or less answers
@answer one, line one
answer one, line two - this will be omitted
@answer two, line one
answer two, line two - this will be omitted
@answer three, line one
answer three, line two - this will be omitted
@answer four, line one
answer four, line two - this will be omitted
@answer five, line one
answer five, line two - this will be omitted
```

12.6   Student help

12.6.1   Introduction

With the student help facility, you can define extra explanatory information in your test, which the student can see after he answers questions. In this way, you can give extra information and feedback to students, when delivering a Question Mark test.

You do this by defining a separate student help file which defines the explanatory information.

Student help is not fully integrated into Question Mark

Professional. It is an additional feature, slightly "detached" from the main software. You cannot use student help in all the ways you might like; in particular student help is not available to give help during a question, only after it; and student help is not available for unmarked or unanswered questions, only for marked questions when the student is told he/she is right or wrong.

12.6.2   Using student help

Student help files have extension .HLP. They are tied into question files by using the same name. Thus a test HISTORY.QUE would have a help file HISTORY.HLP associated with it. A student help file consists of a page of information for one or more questions in a question file. You can define help pages for just one, for some, or for all questions in a file.

Each page in the help file is referenced by a number (from 1 to 500). That is the question number the page refers to. This number is the number in the question file, and can be different to the question number the student sees (if questions are randomised). There is no automatic link between the question file and the help file. If you delete a question from the question file, you must manually delete the page of help and change the numbers in the help file. (Thus it makes sense to make your question file first, and then your help file, or else to plan out your question numbers on paper before developing a test.)

Unlike question files, student help files are not password-protected. They are protected from casual examination from outside Question Mark, but there are several ways within Question Mark of accessing them (eg renaming the help file to that of a different question file). Do not put confidential or secret information in help files.

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Whenever the Question Mark delivery software loads a
question file, it looks for an associated help file. It looks in the
same directory as for the question file, and for the same name
but the extension .HLP. You should therefore put help files in
the same directory as question files.

If the software can find a student help file, it reads in some
information about the file. Whenever the student is then told
whether he/she is right or wrong, the computer offers the
student the chance to click on the **Help** button or press F1 to
get further information.

If he/she does this, then the help page is read in from disk, and
displayed. The student can then move between the help page
and the question screen at will.

When student help is given depends on the type of test.

After tests: After each question, but only if the question is
                     marked and answered.

End tests: At the end of the test, for those marked and
                     answered questions that the computer displays
                     to the student (according to Control page
                     settings).

Never tests: No student help.

If the help file is faulty in some way or cannot be found, then
no student help is offered. If there is a problem in reading the
help file (during the test), then a message saying so is given to
the student. Student help is also given when trying out a test
(though not when just trying out a single question).

Note that student help is only ever given when the student
requests it by pressing F1 or clicking on **Help**, and that it is
available whether the student is right or wrong, but not in

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unmarked or unanswered questions.

12.6.3   Creating help files

There are two stages to creating a student help file. Firstly, you create a document file which defines the help pages. This is an ASCII or plain text file created outside Question Mark, which contains the help text. Secondly you convert the document file into a help file.

You must create the document file with a word-processor or text editor. It should have the same name as the question file, but extension .DOC.

You need to create the file as an ASCII file. If you are using a word-processor, you will need to export the document from your word-processor into an ASCII file (for how to do this look in your word-processor manual index for "ASCII" or "text file" or "document file"). Almost every word-processor can create ASCII files.

Inside the document file, you can put your help pages in any order. Each help page must start with a question number line, and a question number line must be the first line in the file. A question number line consists of an exclamation mark "!", followed immediately by the question number, for example: "!39". The exclamation mark must be the first character on the line.

The lines following the question number line are the help text. You can have up to 21 lines of text (saying whatever you want). You cannot have more than 21 lines and you must have at least one line.

The last rule about a help document file is that any line beginning with an asterisk or star "*" is considered to be a

comment line, and is ignored. There is an example document
file in section 12.6.5 below, and you would be advised to look
at this file, before making your own document files.

You use the *Help* menu option to convert a document file to a
help file. You are shown a list of all available .DOC files on
this directory. Choose the one you want, and the program will
convert the .DOC file into a .HLP file that the delivery
software can read.

If there is a mistake in the document file, the software will stop
with an error message showing you what the problem is. You
must then correct the document file and try again. When the
utility creates the help file, it deletes any prior help file.

You should keep both the document (.DOC) and the help
(.HLP) file. You use the help file with your tests, but if you
need to make any changes, then you must change the document
file and re-make the help file. (You cannot convert from a help
file to a document file, only from a document file to a help
file.)

12.6.4   Problems with student help

Possible things that are worth looking for if you are having
problems using student help are:

- Are you using the .HLP file? The .DOC file is just for
  your reference, and the delivery software needs the .HLP
  file. Check (perhaps by checking the dates and times of
  the files on the DOS directory) that your .HLP file is up-
  to-date.

- Remember that help file question numbers refer to
  question file numbers (which may be different to the
  numbers the student sees if questions are randomised).

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Also if you change the question file numbering, you have to change and re-make the student help file.

- Are you working in the right directory? Your document and help files need to be on the current directory.

- Are you creating a genuine plain text ASCII file? You must convert it out of any word-processor format. A simple way of checking the file is to TYPE or PRINT it with DOS.

- Blank lines count. If you want to put in blank lines that don't count, you need to put a comment asterisk in.

12.6.5   Example student help document file

On the distribution disk is an example test using student help. The test file name is HELPCONV, and there are .DOC, .HLP and .QUE files. A listing of the .DOC file follows. Note that all lines beginning with asterisks are comments (and in this example, they are used for putting in the question text as a reminder).

```
!1
* What famous pop group of the sixties made a film called 'Help'?
*

Help was directed by Richard Lester and starred John, Paul, George and Ringo,
otherwise known as the Beatles.

Both the Rolling Stones and the Shadows also featured in films, the most
memorable being 'Gimme Shelter' by the Stones and 'Summer Holiday' by the
Shadows, with Cliff Richard.

Dave Dee and his friends were too exhausted after composing their name to make
any contributions to the cinematic arts.


*
!2
* If you were in difficulties in France, what would you shout ?
*

Au secours is the nearest French equivalent to 'help!' and means
'to my assistance'.
```

```
You might also shout 'aidez moi', meaning 'help me'.

En avant means 'forward' and Mon Dieu means 'my God'.
A croque monsieur is a form a toasted cheese sandwich popular in French bars.


*
!3
*Who said "The gods help them that help themselves" ?
*

This saying is attributed to Aesop and was contained in one of his fables,
'Hercules and the Waggoner'.

It could, however, easily be applied to the other choices. Napoleon helped
himself to France, and then to the rest of Europe, Henry VIII helped himself
to a succession of wives and a variety of abbeys, monasteries and other church
property during the English reformation, and Ronald Biggs was a principal in
the 'Great Train Robbery' in which he helped himself to a large quantity of
money.

*
!4
* Pick those words which are synonymous with 'help' :
*

A word is 'synonymous' with another word when they have the same meaning.

          'aid'  'abet'  'assist'  'bolster'  'succour'  'sustain'

                      are all synonyms of 'help'

      'obstruct'  'impede'  'hinder'  'handicap'  'circumscribe'  'impair'

      are all antonyms of 'help', that is they have the opposite meaning.
*
```

12.7   Student validation

12.7.1   How validation works

The validation facility gives you control over who does your tests and how they enter their name so that you can be surer of student identity. If you do not use validation, then students can enter any name they wish, and the names in the answer file may not be the true names of the people answering the tests.

To use validation, you do two things.

- You define a student validation file containing valid names. For each student, you set a name (up to 16

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characters) and an optional identity password (up to 8 characters). This file is called QMARK.VAL, and can hold up to 2,000 student names.

- You set in the question file Control page that student names are to be asked and validated.

If you do both these, then when the delivery software reads a question file that requires validation, it will search for the validation file. If the validation file cannot be found, the delivery software will not allow the test to be run. The file is searched for in the same directory order as the setup file, QMARK.CFG.

The student's name is compared against all the names in the validation file, and if it is not there, the student's attempt to answer the test is rejected. If an identity password for the student is defined, the student must also quote this password before his/her identity is accepted. Student names defined by the /S command line switch are also validated in this way.

One theoretical but very unlikely loophole in the validation system would be if students could create their own "fake" QMARK.VAL files to substitute for yours. You can prevent this by setting a validation code as a number from 1 to 999 in the question file Control page. If you do this, then this code must also be included in the validation file for it to be accepted. Setting the code to zero means that this check is not made, but if it is possible that students can access the main software to make validation files, then you may want to use a validation code.

The validation file is encrypted and you should set a password to control access to it. The validation system is independent and complementary to the file passwords described in Chapter 11, and you can use both kinds of security control.

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The obvious way to use a validation file is to have a single large file containing all your student names. Alternatively, if you are delivering tests on floppy disk, you could create a separate validation file for each student, and so personalise each student disk with a validation file for just one student in it.

Refer to section 5.2.2 for how to set the Control page boxes regarding validation. Section 12.7.2 below describes how you create and edit a validation file.

12.7.2   Creating and editing a validation file

You edit a validation file, or create one if it is not there, using the *Validate* option from the *Utility* menu. The way directories and the validation file work is the same as for the setup file, QMARK.CFG, as described in section 12.2.

The editing software shows a list in alphabetical order by student name. Student names and identity passwords are not case sensitive, ie "SMITH" and "smith" are the same.

You select a current student with the arrow keys or mouse in the usual way. You add a new student with F4, and remove a student with F6. To change a student's name or password, you select the name or password part of the screen and click or press Enter, and then type in the new name or password.

You save as usual with F10, and quit with ESC or F9. You can use F7, to make a listing or report of the file, containing all student names and passwords. You can send this to the screen, disk or printer in the same way as the reports described in Chapter 10.

Using F2 gives you a menu of the following options.

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Password

This lets you set a password to control access to the validation file itself. The password must be quoted before editing the file again. If you do not set a password here, anyone with the Question Mark main software will be able to look at or change the validation file.

Free

This reverses **Password**, removing a password from the file.

Code

This allows you to set the validation code, to match the code in the question file as described above.

Random

This allocates all students without passwords new passwords selected at random. Since choosing unique and "hard to guess" passwords is difficult, this can be very useful.

Import

This allows you to add student names taken from an external ASCII (.DOC) file. You are invited to type in the path and name for the file, and the software tries to read it in and abstract student names.

The software looks for one name at the start of each line in the file, and truncates any that are over 16 characters long. Each imported name is put in the list in alphabetical order, with a blank password. If you import names, you should check them carefully, and change or delete any that have been incorrectly imported.

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12.8   Question banking

12.8.1   How question banking works

Question banking is a powerful advanced feature of Question Mark Professional. You should use it only once you are familiar with the more basic facilities.

What it does is let you create a new question file from several existing ones, by copying questions at random from the other files. This allows you to create a new test based on parameters that you set, and can be a powerful assessment tool.

One way of using question banking creates a new question file while using the main software. This has the same effect as manually creating a new file by copying questions from several files. The computer does this automatically according to the parameters you have defined.

The other way of using question banking is to set things up so that the delivery software creates a new question file every time the test is run. This means each student gets a different test to run, which can be very powerful, although there can be management problems, particularly in reporting.

The way question banking works is as follows.

- You choose a master question file. The master file is the "stub" file that all the general pages for the new question file are taken from. You can choose to take none, some (chosen at random) or all questions from the master file for the new file.

- You choose up to 10 other question files. These are treated as question databases, from which you take the questions to put in the new file. From each other file,

you can choose to take some (chosen at random) or all of the questions.

● The new question file is given a new name based on the master file name.

The recommended way of using question banking is to have fixed large "question bank" files. You then have a series of small master files that access these files in different ways. The questions in the master files may best be restricted to specific screens for that test, eg explanation screens to be put at the start of the test.

With question banking, you either select all questions in a file or some questions chosen at random. It is not possible to manually select questions by number from a file. If you want to manually select particular questions in a file, then you should copy these questions (as described in section 5.8) into a new question file, and reference this.

12.8.2   Setting up question banking

To set up question banking, you first create the master file. This should have the general pages you want to use in the new file to be created, except for the Topics and Random pages, which are set by the question banking process itself. You must have at least one question in the master file, but it can be a "dummy" question that is not used in the resulting file.

You then set up question banking by selecting the master file as the current file on the Directory screen, pressing F2, and selecting **Bank**. This shows you a screen of information on the question banking to be done for this master file.

Figure 12.2 shows an example screen. In the example, the

master file is called NEW, and there are five subsidiary files. Two questions are taken from the master file, and 80 from the other ones. The questions from the master file are to become golden questions presented at the start of the test.

	File name	No.	From one topic ?	Golden?
Master question file:	NEW	2		Y
Other question files:	BankC1	10	Topic Alpha	
	Otherqs	20		
	O.dqs	20		
	BankC2	20	Easy questions	
	Bank03	10	Difficult questions	
		0		
		0		
		0		
		0		
		0		

Press F8 to choose question files interactively.

Resulting question file: NEW00001 (...)

Randomise new file? Y   Use topics in new file? Y   Question bank from delivery software? Y   Delete file after run ? N

Figure 12.2   Example screen when setting up question banking

The information you define on the screen is as follows.

Master question file

For the master file, you define the number of questions to be used (from 0 to the number in the file). If you choose less than the number in the file, the ones used are selected at random. If the master file uses topics, you can enter a topic name to define that all questions should be selected from this topic.

You can use F8 to set this information interactively. After pressing F8 with the cursor in this part of the screen, you get a menu of *All, Some, None* or *Topic* to choose which questions to use. The software then asks for more information as needed, and fills in the boxes for you.

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If questions are to be randomised in the new file, you can also set the **Golden?** box to decide whether the questions from the master file are to be golden. This sets the Random page appropriately, provided there are 20 or fewer questions.

Other question files

For the other files, you enter the file name, the number of questions and whether they are to be selected from just one topic. The easiest way of defining this is move the cursor to the appropriate line on the screen, and press F8 to collect the information interactively.

Pressing F8 shows a list of all question files on this directory. Select a name, and then choose whether to use **All** questions, **Some** questions (a certain number at random from the whole file), or if the file uses topics **Topic** (questions from one topic). The software fills in the boxes on screen for you according to your selections.

You cannot use the same file name twice unless different topics are used each time.

Randomise new file?

This box defines the setting for the Random page in the new file. The questions are stored in the file in the order they are shown on the screen. The Random page can either be set to randomise all questions (if this box is 'Y'), or to present the questions in order (if this box is 'N').

Use topics in new file?

This box defines whether topics are used in the new file or not. See section 12.8.3 below for how the topic names are set.

Question bank from delivery software?

This box defines whether question banking is to run automatically from the delivery software. If 'Y', then the question file is not run as an ordinary test, but as a master file

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for question banking to create a test that is run. See section 12.8.4 for more explanation.

**Delete file
after run ?**
This box is only available if the previous box is set to 'Y'. It means that after running the new test from the delivery software, it is deleted. This has implications in reporting on answer files - see section 12.8.5 below.

Once you have finished editing, you press F10 to save the information within the master question file. You can edit it at a future time by selecting **Bank** again.

12.8.3 Running question banking in the main software

When you press F10 to finish setting the question banking, you are asked if you want to create a new question file now. Select **Yes** to do this, or **No** to return to the Directory screen.

If you just want to create a new file without changing the way things are set up, you select **Bank**, press F10 without making any changes, and then select **Yes**.

The master and other question files must be in the same directory for question banking to work, along with any graphics and other files they reference. The new file is built up as follows.

1.   The name of the new file is chosen by taking the first four characters of the master file name (or as many as there are), followed by 0001, 0002 or the lowest digit sequence available. So NEW goes to NEW0001, or if this is already there NEW0002 etc. A pre-existing question file is never deleted, and if all possible names are used (unlikely), then the process fails.

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2.   The new question file is set up with all the general pages
      in the master file except the Random and Topics pages.
      The same passwords (as set in section 11.2) are copied
      over. The question banking information is cleared.

3.   The Random page is set according to how the
      Randomise new file? and **Golden?** boxes are set, as
      described in section 12.8.2 above.

4.   As specified, any questions from the master question file
      are copied to the start of the new question file.

5.   In the order specified on the screen, each other file is
      read and the questions in it copied to the new file. If
      teacher passwords are set for the files, you need to quote
      them.

6.   If the **Use topics in new file?** box is set, then a Topics
      page is set up. This contains the topics used, with a
      minimum of one topic per file accessed. If no topics are
      used in a file, the topic name is set to the test title. If this
      is not set, the file name is used. If more than 12 topics
      are needed, the topic allocation stops; the file is still
      made, but you get a warning message advising you to
      review the topic allocation in the file.

7.   No checks are made as to the compatibility of graphics
      with any Display page in the new file. If you are using a
      graphical Display page, you need to ensure that the
      display modes of graphics used in the various files are
      compatible with each other.

8.   If there is a student help (.HLP) file present for the
      master file, a student help file is made for the new file,
      with help for each question in the new file that had
      student help available in its previous file.

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If there is an error (eg not enough questions in a file), you are given an error message. If successful, you create a new question file. This appears on the Directory screen, and you should be able to edit it in the same way as any other question file.

(It is possible to create files using question banking that are too large to fit into memory to be edited - refer to the trouble-shooting Appendix if this happens.)

12.8.4   Running question banking in the delivery software

When the delivery software loads a question file, it checks to see if you have set the question banking box **Question bank from delivery software?** to 'Y'.

If so, then instead of running the file as an ordinary test, the delivery software runs the question banking process to create a new file. This means that the question file cannot be run as a test, but only to make a new test that will be run. Take care that you do not do this by mistake to a test you want to run.

The process of creating a new file works exactly as in section 12.8.3 above. However if there is an error, the student is given just a simple error message (and there is no warning about too many topics). There needs to be enough disk space to store the new file, and you should usually deliver question banking tests on hard disk, not floppy disk.

If you use teacher passwords, all the teacher passwords in the files used to make a question file must be the same. Otherwise the delivery software will not make a new file, because this could evade the password protection.

The delivery software creates the new file and runs it. Apart from a short delay, the student sees no difference to running an

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ordinary test. The fact that question banking is being used is transparent to the student. He/she just runs the test in the usual way.

If you set the **Delete file after run ?** box, then the new question file created is deleted after it is run. Otherwise the new file remains in the same directory as the master file, and repeated runs will create a series of different question files, all created in the same way. (The names of the files will have ascending numerical digits as described above.)

12.8.5   Reporting after question banking

If question banking is done from the main software, as in section 12.8.3, then all that is happening is that the software is automating the process of creating a new question file. What you have made becomes an ordinary question file, which you can use in the ordinary way. You would normally deliver the same question file to lots of students, and analyse the answers in the same way. The reporting software does not notice that some questions have been copied from another file, in the same way as when you copy the questions manually.

However if you are using question banking from the delivery software, as in section 12.8.4, then every time you run the test, you get a different question file. Depending on whether the question banking process is performed in parallel on different machines, and depending on whether question files are deleted after being run, these files may have different or the same names.

Even if the question files have the same name, the questions in the file will be different each time, and this can lead to problems when reporting on the answers.

The Full and Answers reports will still be fine, as will the

Corrected and Brief reports provided you keep the question files and do not delete them. These reports only work on one set of answers.

However the other reports and the exports to spreadsheet and database may not be possible or useful, either because the question files have different names or different contents. The Totals report should usually be reliable, but the Question analysis, Marks and Statistics reports are likely to be wrong or unreliable. Use these reports after question banking only with great care.

At the time of writing this manual, we are considering adding additional analysis facilities for use after question banking. If you are interested in this area, please contact us to discuss this.

12.9   Macros

12.9.1   What macros are

Sometimes you may want to repeat an action many times within Question Mark. For example, you may want to change the scoring in several questions in the same way, or you may want to change a general page in a test the same way for lots of tests.

Question Mark Professional includes the ability to record macros, which are series of keys. You can then play back this series with just one key.

When you perform repetitive actions within Question Mark, and use the same sequence of keys repeatedly, using macros will save you time and energy.

12.9.2   Recording and playing back macros

You can define up to 12 macros, one for each of the function keys F1 to F12. You can record one at any time within the Question Mark main software, except when trying out a question or test.

To record a macro key, you press Alt plus a function key. All keys pressed until the next time you press Alt and a function key are recorded (up to 150 characters). You get some audio feedback while recording.

To play back the macro, you use Shift plus the same function key. For example, supposing you want to assign the process of getting a Totals report to the screen for an answer file to the key Shift-F7, you would do the following.

1. Get the software to where the macro keystrokes are appropriate. In this case go to the Directory screen, and select an answer file.

2. Press Alt-F7 to start recording. You will get a short musical sequence as confirmation.

3. Press the keys to be recorded in this case F7, "T" (for Totals), and "S" (for Screen). The computer will beep gently after each keypress.

4. Press Alt-F7 again. You will get another short musical sequence to tell you your macro is recorded.

Now whenever you press Shift-F7, Question Mark will act as if you had pressed F7-T-S, which will give you a Totals report if an answer file is selected.

Macros can do anything you want, including tasks much more complicated than this. They work only on the keyboard, not on

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the mouse.

When selecting from a menu in a macro, you should use the
letter of the option name like in the example above. Be careful
about using arrow keys in macros, because their effect is
relative; and so pressing an arrow key can have different
effects at different times. If you want to move around the
Directory screen in a macro, one useful thing is to type a letter
key; this moves you to the first file starting with that letter.

12.9.3   Saving and viewing macros

At the end of a Question Mark session, if you have recorded
any macros, you are asked if you want to **Save** or **Abandon**
them. If you choose **Save**, the macros are saved in the file
QMARK.MAC on the current directory.

At the start of a session, Question Mark searches for a
QMARK.MAC file in the same directories as it searches for
the setup QMARK.CFG file. If you change directories during a
session, be careful that you save any macro file into a directory
that will be read from when you re-run Question Mark. (You
may need to change directory before leaving Question Mark, or
copy the macro file from DOS.)

You can view the currently assigned macros by selecting
Macro from the **Utility** menu. This shows you the keystrokes
in each macro. Most keys are shown by name, but some
uncommon keys are shown by number. (These mean 1-255 for
an ASCII or extended ASCII key, and for special keys, 256
added to the keycode).

You cannot change or edit macros once recorded. You have to
re-record them.

You can call a macro key at the start of running Question

Mark. For example calling Question Mark with the command line "QM/S4" has the same effect as running Question Mark and then pressing Shift-F4. This can be useful to get the software to automatically do something for you from a batch file. Using this facility, you can set up a menu of Question Mark effects that people can use without needing to know anything about the software.

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Appendix A
Using the screen-snapper

A.1   The Question Mark screen-snapper

This section of the manual describes how to use the memory resident screen-snapper program, QMRES, included with Question Mark. QMRES is a program that can sit in the background of your computer and snapshot the screens of other programs. It will create .PCX graphics files containing these screens that you can then use within Question Mark.

Using QMRES, you can snapshot from almost any PC program. For example, you can snapshot:

- pictures you have created in graphics packages like Harvard Graphics, Lotus Freelance or Windows Paintbrush;

- pictures that you have scanned in from paper using a scanner, which you can view on screen with scanning or paint programs;

- screens from application programs that you are teaching or testing on;

- graphics from specialist analysis or spreadsheet programs that you want to use in your tests;

- screens created by word-processors or other programs containing foreign language or large font characters that you cannot otherwise create in Question Mark.

The basic maxim is that anything you can see on the screen, you can grab into Question Mark. Thus, with a graphics package, as long as you can display your graphics on the screen, you can grab it into Question Mark. With a scanner, as long as the software that comes with it can display what you have scanned, you can grab it into Question Mark.

There are some circumstances in which you cannot snapshot or you may have difficulties. The most important of these is that you can only snapshot in certain screen display "modes". QMRES will work in some screen modes, and not in others.

The main mode that QMRES will work in is in standard VGA colour mode (16 colours, 640x480 pixels). It will also work in other 16 colour modes (640x350 and 640x200), in 2 colour black and white modes in the same resolutions, and in plain text mode.

QMRES will *not* work in Super VGA modes that have more colours or higher resolution than this. Thus if you need to snapshot from a program that is running in a Super VGA mode (eg with 256 colours or with an 800x600 display), you cannot use QMRES.

The best way round this is to configure the program to run in standard VGA; almost every program can do this. Alternatively, if the final picture is not too high resolution to fit into Question Mark, you may be able to find another way than using QMRES to make a .PCX file from it.

One extra consideration is whether the PC you are using to create the tests has a different kind of display to the PC you plan to deliver the tests on. For example, if you are preparing tests on a VGA computer and plan to run them on an EGA computer, the screens you snapshot are likely to be in a VGA display mode, which the EGA computer cannot display.

Although Question Mark includes some facilities to convert such images, it is much better to create them in the display mode you plan to use them in. In these circumstances, you should re-install your graphics software to work in the lower resolution mode. For example, tell a graphics package to work in an EGA display mode, rather than a VGA one.

One last point to bear in mind is copyright. The process of snapshotting an image is akin to copying it. Depending on where the image came from and whose copyright it is, you may be breaking copyright by snapping it, especially if you then distribute it widely.

A.2 Loading and unloading the screen-snapper

A.2.1 Loading QMRES

The screen-snapper is a memory-resident software utility. This means that once you load it, it sits in memory waiting for you to call it up to snapshot a screen. It consists of one file QMRES.EXE.

To load the screen-snapper, you should first enter the directory you want snapshot files to be saved to, and type "QMRES" and Enter. The screen-snapper is then loaded into memory, waiting for you to call it up to snapshot screens.

A.2.2 Unloading QMRES

While loaded, the screen-snapper takes up about 15K of memory. You can unload the program from memory (and so free

this 15K), by typing "QMRES/U" and Enter. There are some circumstances in which unloading is not possible (eg another program is loaded on top). In such cases, you get a warning message, and can then unload the software only by re-booting the machine (eg pressing Ctrl-Alt-Del).

A.2.3   Changing the QMRES hotkey

The way in which the screen-snapper works is that it waits until you press a particular set of keys (called the "hotkey"), and then tries to snapshot the screen. The hotkey is usually two out of the following four keys - Ctrl, Alt and the two shift keys Left Shift and Right Shift. The default hotkey combination is for you to press Ctrl and Right Shift at the same time.

Sometimes, you might want to change this hotkey, for example if this key combination is already used by other software on your system. To do this, you put a parameter on the command line, when you load QMRES. The following command lines are possible.

QMRES/B   Set hotkey as Right Shift and Left Shift.

QMRES/A   Set hotkey as Ctrl and Alt.

QMRES/R   Set hotkey as Right Shift and Alt.

QMRES/L   Set hotkey as Left Shift and Alt.

QMRES/C   Set hotkey as Ctrl and Left Shift.

QMRES/S   Set hotkey as Ctrl and Right Shift (return to the standard hotkey).

QMRES/N   Set the hotkey as the Num Lock key. This

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means that whenever you turn Num Lock on, you snapshot the screen. This hotkey can be useful if the other possible hotkeys are all already used by the application you are snapshotting from. However, it interferes with other use of the Num Lock key (to use the numeric keys), and should only be used if you need it.

Thus, if you type in the command line "QMRES/C", then the hotkey is Ctrl and Left Shift pressed together. If the screen-snapper is already loaded, you can change the hotkey by calling it again with a new parameter. (Only one version of the program will actually be loaded into memory at one time.)

A.2.4   Defining the file name used to save snapshots

Snapshot files are always saved on the directory that was current when you loaded QMRES.

The default file name is of the form SNAPxxxx.PCX, where xxxx is a four digit number. The first file to be saved is SNAP0001.PCX, the second SNAP0002.PCX, and so on. If you delete intermediate snapshot files, subsequent ones are not placed in the gaps, but after all other files. (Note, you should not allow SNAP9999.PCX to exist, as otherwise you will be unable to snapshot more screens.)

You can change the file name used by the software by using the /F parameter. For example "QMRES/F=TEST" will save files as TEST0001 etc. You can use 1-6 letters only in your /F parameter, ie "/F=A" or "/F=ROBERT" are okay, but "/F=ROBERTA" or "/F=ALPHA1" are not. Thus "/F−A" will cause snapshotted files to be A0001.PCX, A0002.PCX etc., and "/F=ROBERT" will cause snapshotted files to be ROBERT01.PCX, ROBERT02.PCX etc. (with fewer digits

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used because DOS only allows 8 character file names).

You may well find that the standard naming suits you, but if you want to save a series of screens with different names, you can do so, simply by calling QMRES with a different /F parameter between snapshots.

You can combine several parameters on the same command line, and you can re-call QMRES as often as you want to, changing the parameters. Every time you call it, the software gives you a descriptive message of what is happening.

Snapshot files of graphics screens are stored as standard .PCX file format files. Snapshot files of text screens are stored as proprietary format files with extension .PCT. See Chapter 7 for more information on .PCX and .PCT files.

A.2.5   Use with Windows

You can use QMRES to snapshot screens from programs running under Windows. To do this, load QMRES before you run Windows, and then the hotkeys will work in the usual way. Some Windows programs use the keys that QMRES uses for other purposes, and you may need to change the hotkey used with these programs.

You will also want to make sure that Windows is running in a display mode that QMRES will work with, for example standard VGA. To set Windows to run in VGA display mode, double-click on the Windows Setup icon. Then choose the Change Systems Settings command on the Options menu, and set the display to VGA.

Because of interactions with some Windows programs, QMRES can sometimes make two pictures when you press the

hotkey once. These pictures will either be identical, or one will be correct and one will be awry. If this happens, just delete the unwanted files with Question Mark.

A.3   Snapshotting a screen

A.3.1   Pressing the hotkey

Once you have loaded the screen-snapper, you can then invoke it (to snapshot a screen) by pressing the hotkey. Unless you have specified a different hotkey (as above), this is Ctrl and Right Shift. Hold both these keys down together and you invoke the screen-snapper.

You can literally do this at *any* time while *any* program is running, though it is safest to do it when the screen display is stable and no disk activity is underway. You should not try to snapshot from a program that is writing to your hard disk directly or in a non-standard way (eg disk utility programs), as this could theoretically lead to loss of data.

At this stage, the whole screen is snapshotted - using Question Mark, you can later cut out the part of the picture that you want to use.

A.3.2   Successful snapshots

If the screen-snapper can run, it interrupts your previous program, takes a copy of the image on the screen, and saves it to disk.

On some hardware the display flickers briefly while the screen is being snapshotted. But on other hardware, there is no visual feedback at all about whether the screen save is successful.

However, the computer makes three beeps after it has saved the image, and you can also tell if the computer is saving an image by looking at the disk ready light - it typically takes a few seconds to save a screen.

On returning to your program (after you have snapped a screen), you probably can carry on normally with what you are doing.

However if you are using an EGA display adaptor (only likely on quite elderly PCs), the display can be upset. If this happens, you may have to leave your application and re-enter, before being able to continue working.

A.3.3   Problems when snapshotting

There are some circumstances when the screen-snapper cannot run.

- It cannot run when the program you are running is using DOS (eg to save something to disk). The screen-snapper itself needs to use DOS, and DOS cannot do two things at once. If DOS is busy, the screen-snapper beeps to say that it cannot run. Usually, if you try later, or keep on trying, you can run the screen-snapper eventually.

- The second case is when the software is displaying in the wrong mode. Then you get a beep (higher in pitch than the beep for DOS being busy) to tell you that the screen snapper cannot run. The most common modes that can be "wrong" in this way, are Super VGA modes or 40-column modes (where there are only 40 columns of text on the screen).

- A disk error (eg the disk being full) stops the snapshot file being saved. This can also occur when trying to

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snapshot from programs that do very unusual things with or to replace DOS. The screen-snapper gives a long series of beeps if this happens.

- Other memory-resident programs may prevent the screen-snapper from running. See section A.4 below.

- Some programs that work very closely with the graphics hardware (eg games programs, and some versions of the GEM software) may do things that are impossible for QMRES to snapshot. This also applies to some programs running in Super VGA modes. With such programs, you may either be unable to snapshot screens, or else what you have snapshotted may not be an accurate picture of the screen.

Because of the lack of visual feedback within QMRES, it can sometimes be difficult to know quite what is happening when things go wrong. However, things should not go wrong very often, and when they do, you can usually find out what is going wrong, by considering and eliminating each of the above.

A.3.4   Continuous snapshotting

One advanced feature that you can use if you need to is the ability to take continuous snapshots of an application every few seconds.

You can set this up with the parameter "/N$", ie using the command line "QMRES/N$". If you do this, then when you turn both Num Lock and Scroll Lock on (with your keyboard), the software takes a snapshot of the screen every few seconds until you turn one of them off.

This facility allows you to snapshot from applications without having to press a key, and so lets you snapshot when the

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standard hotkeys will not work. It also allows you to take an automatic series of snapshots from a fast-moving program.

Using this parameter is a slightly dangerous thing to do, as QMRES will be running continuously at the same time as your other program. With some programs, this could in theory cause some kind of disaster. Use it carefully and experimentally, and make sure you have backed up all the data on your hard disk before using it.

A.4   Difficulties snapshotting screens

If you have problems snapshotting, obey the following steps.

1.   Can you snapshot from the Question Mark test delivery software? (To try this, re-boot your machine, enter the Question Mark directory, type "QMRES" and Enter, and then type "S" and Enter; when a picture (any picture) is displayed on the screen, press Ctrl and Right Shift together; you should grab a screen. If you cannot, then your problem is probably with clashes with other memory-resident software. See below.

2.   If you can snapshot from Question Mark, but you are having problems snapshotting from other software, then read section A.3.3 carefully. Another possibility to consider is that you might be snapshotting a screen, but it is going to the wrong directory. Also, try continual pressing of the hotkey; sometimes this can work.

3.   If you are still having problems, then it may be that you have come across software that QMRES cannot snap from.

To test whether other memory-resident software might be causing you problems, you should try running QMRES with no other memory-resident software on your PC. To do this, look in your AUTOEXEC.BAT file, and see what commands are there which could be memory-resident programs, and make a temporary version of AUTOEXEC.BAT without them.

If QMRES still does not work, please check that you have removed all the memory-resident programs. If you are sure, then it is possible that your hardware is not properly IBM compatible, or else that there is a problem with our software. Please call us.

If QMRES does work when you remove all memory-resident software, you can find out which memory-resident software is causing the trouble by putting them back in your AUTOEXEC.BAT file one by one.

Appendix B
Converting from other versions of Question Mark

B.1   Overview

At the time of writing this user manual, there are four main versions of Question Mark.

- Question Mark Version 1 for the IBM PC (including Versions 1.0 through 1.13);

- Question Mark Version 2 for the IBM PC (including Versions 2.0 through 2.11);

- Question Mark Version 3 for the IBM PC (this version of the software);

- Question Mark for Macintosh Release 1.

The three different versions of the IBM PC software use different versions of question and answer files. The Macintosh software uses the same format as Version 2. You need to convert files to be able to use them in different versions.

The different versions of the IBM PC software use the same format for multimedia and student help files (and report definition files). They also can all read the same setup file. The Macintosh software does not use these files.

The way graphics are treated is the same in Version 1 and Version 2 of Question Mark, but completely different files are used in Version 3 (a separate graphic file for each picture

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rather than one per test). The Macintosh also uses graphics differently.

You can convert files between the various formats, and the rest of this Appendix describes how to do it.

- Section B.2 describes how to convert from Version 2 of Question Mark to Version 3.

- Section B.3 describes how to convert from Version 1 of Question Mark to Version 3.

- Section B.4 describes how to convert files between Question Mark for Macintosh and Version 3. You can convert question and answer files to Version 3, and question files back to the Macintosh.

Please check the READ.ME file on the distribution disk in case there is any more up-to-date information on converting files.

B.2   Converting from Version 2 to Version 3

B.2.1   General concepts

Question Mark Professional Version 3 includes all the functions of the Version 2 main program, Graphics Companion and Toolkit, and also does much more. A brief description of what is new in Version 3 is given in Chapter 1.

Question Mark Version 3 is upwards compatible from Version 2, with some very minor exceptions. Any material you have created or used in Version 2 can be easily converted for use in Version 3.

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- You can convert Version 2 question and image (.QMI) files into Version 3 format, as described in section B.2.2 below.

- Any setup file, student help files, report definition files or multimedia files are usable in Version 3 without change.

- You can convert answer files from Version 2 format into Version 3 format as described in section B.2.3 below.

- Question Mark Version 3 no longer uses .SNA snapshot files, which were used as temporary files for storing graphics in the Version 2 Graphics Companion. If you want to keep any of these files, you should convert them into .PCX files or .QMI files using the Version 2 software.

- Version 3 does not support the use of .QMJ and .QMK files which in Version 2 allowed you to have different versions of graphics for use on different displays.

You will obviously need sufficient disk space to be able to convert files. Version 3 question files use slightly more disk space than Version 2 ones. Version 3 answer files use more space for files with more than 50 sets of answers, and slightly less for smaller answer files.

B.2.2   Converting questions and graphics

To convert a Version 2 question file, you should select it on the Directory screen, and then press F2, and select *Utility*, *In/out* and then *Update*.

This renames the Version 2 .QUE file as a file with the same name but a .V2Q extension, and creates a Version 3 .QUE file with the questions converted to Version 3. Thus if you are

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converting GEOG.QUE, you get two files: GEOG.V2Q, which is the Version 2 file renamed and GEOG.QUE which is the new file. This means that the software does not delete your old file, in case you ever need it.

If there is a .QMI graphics image file for the question file on the current directory, the software also converts this. In Version 3 graphics file names and positions are defined within the question file, with a separate file used for each graphic itself. These are stored in the standard .PCX format. See Chapter 7 for a description of how graphics work in the new version.

When converting graphics, the software creates a separate .PCX file (or .PCT file for text graphics) for each graphic in the .QMI file. These are given sensible names by the software. References to the new graphics files are included in the new question file.

Thus selecting **Update** takes an existing .QUE and .QMI file, and creates a new .QUE file, and a series of new .PCX files. The old .QUE file is renamed to .V2Q, and the .QMI file is left; you can delete these later once you are satisfied with the conversion.

Your questions and graphics should work the same in the Version 3. However the delivery (student) software in Version 3 is considerably changed, with the use of student buttons and the Display page, and you should carefully check your material in the new version in case of any changes that may matter to you. This will particularly apply to any instructions you give to students about how to answer questions.

One possible cause of problems is the use of boxes round question wordings. In Version 2, this was defined in the setup file, and you may want to copy any Version 2 QMARK.CFG file into your Version 3 directory before converting files. In

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Version 3, boxes are defined on the Display page, and in each question's graphics definition page. When converting, the software looks for the Version 2 setup file and tries to make a sensible conversion, but you may find that you need to change the way boxes round question wordings are set in the new file. You do this either by turning them off or on for the whole test in the Display page, or by turning them off or on in the graphics definition page for a question or screen. Refer to Chapter 7 for details.

B.2.3   Converting answer files

You convert Version 2 answer files in a similar way to question files. You select a file on the Directory screen, and then press F2, and select *Utility*, *In/out* and then *Update*.

This renames the Version 2 file with a .V2A extension, and creates a new Version 3 .ANS file.

You can use the converted file in all the ways that you can use an ordinary Version 3 file, except that the software will not allow a Corrected or Brief report on a converted file, and the new Statistics report will calculate only the discrimination (and not the facility) for converted answers. If you need a Corrected or Brief report, you should use the Version 2 software, with the original Version 2 question and answer files.

B.2.4   Possible problems

If you run into a problem converting files, please check the READ.ME file on the distribution disk. We will put any known problems and solutions in this file. If you do have another problem, please contact us, and we will try to help.

Version 3 uses more memory for the program than Version 2.

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We have taken all steps we can to save memory but you may find that some files that you can use under Version 2 are not useable under Version 3. Refer to Appendix C for some information about how you can free up memory in the software. In the worst case, you may have to divide a large question file into two parts to be able to use it in Version 3, but please contact us before doing this, as we may be able to help.

B.3   Converting from Version 1 to Version 3

Question Mark Version 3 is also upwards compatible from Version 1 of Question Mark. To convert question and answer files from Version 1 to Version 3, you should follow a two-stage process.

- Convert the files to Version 2 format. To do this you need the XFER2.EXE program, which is available from Question Mark Computing. Running this gives you a list of all Version 1 files on the current directory, and lets you convert a file by selecting it and pressing Enter on it.

- Convert the Version 2 files into Version 3 format as described in section B.2 above.

Make sure you back-up your Version 1 files before converting them, as the originals will be lost in the conversion process. If you have any problems converting files, please contact Question Mark Computing for help.

B.4   Converting from and to Question Mark for Macintosh

One of the advantages of using Question Mark is that you can create material that can run on both the IBM PC and Macintosh computers. This works very well for text-only tests (without graphics).

Question Mark for Macintosh Release 1 uses the same question and answer file formats as Version 2 of Question Mark for the IBM PC. Thus you can convert question and answer files from the Macintosh as described in section B.2 above.

You can convert question files from Version 3 format back to Version 2 format. To do this you use the **Revert** menu item on the **Utility In/out** menu. This takes the Version 3 question file and creates a new Version 2 question file with a new name.

You cannot use **Revert** on any question file with logical type questions as these are not used in Version 2. The converted file omits the other new Version 3 features, including topics, numeric units, the Video page, the Keys page, the Display page, graphics definition pages, allowing golden questions even if all questions are selected, the duplicate and empty gaps fill in blanks features, and date barring.

Graphics are not converted or referenced in the new file. To convert graphics to and from the Macintosh, you have to convert the individual graphics files between .PCX and a Macintosh format, using a graphics conversion or graphics editing program.

When converting to and from the Macintosh, you will also have to copy the files from one physical disk format to another. To do this you use Apple File Exchange or a similar program - see the Question Mark for Macintosh user documentation for

how to do this.

Another issue is that the PC and Macintosh have different combinations of extended characters. If your tests use the standard English ASCII characters, you will have no problem, but not all the non-standard characters supported on one machine are supported on the other.

Anyhow, if you are converting to and from the Macintosh, you should always carefully check your material after conversion.

These notes apply to Release 1 of Question Mark for Macintosh. If you are using a more advanced version of this software, refer to the user documentation in case there have been any changes in the way you convert data to and from the PC.

Appendix C
Trouble-shooting and error messages

C.1   Overview

When something goes wrong in Question Mark (eg you do something the computer is not expecting), an explanatory message is displayed in the command area. Every such message is listed here, together with a paragraph or so explaining what is happening and what you can do about it.

If you cannot find the message at first, try looking for other wording in the command area and look that up. Normally the message listed here is the message shown one line up from the bottom of the screen.

Messages from the delivery software are given first, in alphabetical order. When you try out a test, and get an error message, look here too. Messages from the main software are given after these, in alphabetical order. Lastly there is a section on memory problems (what to do if you run short of memory).

If you have a problem that this Appendix does not solve, try looking in the index to find the section on the problem area in the main part of the manual. If all else fails, call us, and we will try and help you. Before calling us, *please read this manual carefully*. Many people who ring us up for help could find out how to do what they want from the manual. Please also look at the READ.ME file. If you do ring us with a problem, try to ring us while you are sitting at a PC with Question Mark running.

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C.2   List of delivery software error messages

Access not allowed

> An attempt has been made to run a question file that is stopped, prevented to run until a certain date, with the wrong password entered, or without the student name being validated. Or you have specified that the question file is to be deleted after being run, but it cannot be. If this message happens on another file after a previous one, make sure that the password in the previous question file next file specification is the same as that for the next file (and that if one is blank then both are).

Cannot continue - out of memory

> There is not enough memory for the delivery software. See section C.4.

Cannot create questions to run

> The question file is set up for question banking, but there has been an error in trying to create the new file. Possible reasons might be that there is no disk space, not enough memory, some question files are not present or do not have enough questions, or the question files have incompatible teacher passwords. Refer to section 12.8.

Cannot display picture

> There is a problem displaying the graphics for this question or page. This may be because one of the graphics files is not displayable on this PC, or else if there are more than one graphics to be displayed, then two graphics pictures may be incompatible with each other. The question is presented without some or all of the graphics. See also section 7.2.6.

Cannot find graphics for question

> One or more of the graphics files used in this question or page cannot be found on disk (in the same directory as the question file). Or if it can be found it cannot be opened, or is not a proper .PCX, .PCT or .QMG graphics file. The question is presented without the graphics. See also section 8.4.3.

Cannot find question file

> The question file you have specified is not there. (This message can appear on trying to find another file after a previous one; to avoid this happening, place all connected question files in the same directory.)

Cannot read graphics

> There has been a disk error in trying to read one or more of the graphics for this question or page. The question is presented without the graphics. The most likely reason for this is that a file or disk has become corrupted.

Cannot read questions

This error message occurs when there is a disk problem while reading in the question file. Either the disk file has been corrupted or truncated, or the disk reading was disrupted (eg floppy disk removed while reading).

Command line does not make sense. Cannot run software

The command line you have entered to run the delivery software does not make sense to the computer. Possible reasons are that you might have specified a file to run that does not have the .QUE extension, or that the parameters are wrong (eg they include a space before or after the equals sign). Refer back to section 8.4.1 and try again.

Computer unsuitable

The computer has a version of DOS less than 2.0 or an unsuitable display. Question Mark will not run.

No questions available on disk

You get this message if there are no question files (not stopped, nor prevented from running until a later date, and of the right version) in the current drive and directory when the delivery software is run, or on the directory defined with a /Q command line parameter. Try changing the current drive or directory or specifying the test you want to run on the command line.

Not enough memory to load graphics

There is not enough memory to load some or all of the graphics for a question or page. This should only happen on computers with small amounts of memory, with large question files, or with very large graphics files. See also section 8.3.4 and C.4.

Questions are wrong software version

The question file is from a different version of Question Mark to the software, and cannot be read by this version. You will need to either convert the question file or upgrade the software (contact us if necessary). See Appendix B for details on file conversion.

Sorry, unable to read help information.

There is some problem reading the student help file data, and student help cannot be displayed. This could be because of a disk reading problem, but is most likely a memory problem. In order to display student help, there needs to be enough spare memory to store the whole screen in memory, which can be a lot of you are using colour graphics. See also section C.4.

Unable to run test. Not all the graphics files are present.

The test references graphics files that are not present on disk, and you have set this to be checked for before the test is run, it cannot run. See section 8.4.3.

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Unable to run test. This computer has the wrong kind of display

> The test uses graphics that cannot be displayed on this computer, and because you have set this to be checked for before the test is run, it cannot run. See section 8.4.3 and section 7.2.6.

Unable to store answers to disk in ...

> This message appears when it is not possible to save a set of answers to an answer file. The path being used is shown in the message. The student is invited to press "R" to retry saving, "A" to abandon the answers, or "F" to save to floppy drive A:\. The student is usually given one of the messages below in addition.

> *Access to answer file refused*

> > Either the file is read only (change with DOS ATTRIB command), or it is password protected with a different password to the one you are now trying to use, or on a network, the file is being accessed by another student (wait and retry).

> *Another file is in the way*

> > A .ANS file that is not a Question Mark answer file is there, and must be deleted before Question Mark can write the answers.

> *Answer file has too much data in it already*

> > The answer file already has 999 sets of answers in it. For answer file names with less than 8 characters, a new file with a similar name is usually made instead of giving this error.

> *Cannot go to specified path*

> > The path specified for saving the answers in does not exist or is not available. This may happen if you are using a /P command line switch with a path that does not exist, or if a floppy drive is not ready.

> *Floppy disk drive not ready*
> *Floppy disk has write protect tab on*
> *Not enough room on disk*

> > These are self-explanatory.

> *Operating system disk error*

> > This means a disk critical error occurred on saving. This is usually either a disk media error, or a network sharing error. On a network, the student should wait and retry saving.

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C.3   List of error messages in the main software

For all messages, press ESC after reading them, to continue with Question Mark. With many messages, you can get information by pressing F1, without needing to refer to the manual.

Answer does not fit within definition of dashes
The answer where the cursor is now is too large to fit in the group of dashes in the question wording. You must put at least as many dashes in the question wording as the largest possible correct answer. See also section 6.6 and *Unable to proceed*.

Answer file is full, and can take no more data
The answer file you are collating to has 999 sets of answers, and there is no room for any more. The collating must stop. See Chapter 9 for how to edit answer files, and how to collate selectively.

Answer is not single word
In a word question, correct answers must be single words, without spaces in the middle. See also section 6.5 and *Unable to proceed*.

At least one answer must be right
For a multiple choice question, marked right or wrong, you must define one answer to be right (by putting 'Y' in the box associated with it). Similarly in word and fill in blanks questions you must define at least one correct answer. See also the relevant part of Chapter 6 and *Unable to proceed*.

Bonus score causes score to exceed test scoring limits
Any bonus score you enter is added to the original student score. The resulting score must be within the possible minimum and maximum scores. For example, if a student gets full marks, you cannot give him/her more marks than the maximum. You must adjust the bonus score to keep the total score within the limits shown on the screen. See also section 9.2.

Cannot access question file   report will be shortened
For a Questions analysis report to use the question file, it must be on the current directory. This message happens if it is not, if its password is quoted wrongly, or if it cannot be read. The report will still be produced in a shortened form.

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Cannot continue. Problem reading in .DOC file

>   See the line below this message for an explanation of the message. See also
>   section 12.6.

Cannot continue. Version of QM.EXE not compatible with .OVL file

>   The software (QM.EXE) is trying to call a subsidiary overlay file (the name of
>   which is on the line above this message), but the version of QM.EXE and the
>   version of the overlay file are different. They must be exactly the same, or the
>   overlay cannot run.

>   If the function you are trying to run is part of standard Question Mark, then
>   you have failed to install the software properly. Refer back to Chapter 2.

>   If the function you are trying to run is from an add-on to Question Mark, then
>   you must either obtain a version of the add-on that is the exactly same as your
>   version of QM.EXE, or else obtain a version of QM.EXE that is the same as
>   your add-on. Contact us if you are unsure.

Cannot create spreadsheet file

>   The software is unable to create the new .WKS file you have specified. The
>   reason for this is given below this message.

Cannot delete one or more files

>   It has not been possible to delete either the .QMM or .HLP file (or both) for
>   this question file, perhaps because the file has been made read-only.

Cannot find first question number line (with ! at start)

>   The .DOC file does not seem to have a start line with an exclamation mark
>   and a question number, and so cannot be converted to a .HLP file. The first
>   non-comment line in the file must start with an exclamation mark. See section
>   12.6.

Cannot find .OVL file. Function not available

>   The software cannot find a subsidiary overlay file to do what you have asked.
>   The name of the file it cannot find is shown on the line above. Look at section
>   2.3.1 for what you need to do for Question Mark to find overlay files.

Cannot rename one or more files

>   It has not been possible to rename either the .QMM or .HLP file (or both) for
>   this question file, perhaps because the name is already being used.

Cannot run program as subsidiary program files missing

>   Question Mark needs to be able to find the file QM0.OVL to be able to run.
>   You have not installed the software properly. Refer to Chapter 2.

Cannot unload QMRES

It is not possible to unload QMRES, most probably because another memory-resident program has been loaded after QMRES was loaded, and is blocking the unloading. To stop this happening in future, load QMRES after the other program. You can re-boot your computer (with Ctrl-Alt-Del) to remove QMRES.

Can't find correct help file on disk

The help file has not been found and so help is not available. The file is searched for firstly on the drive or directory that was current at the program loading, secondly via the environment string QM, and lastly on directory \QMARK3 of the current drive. Please check that you have installed the software correctly - look again at Chapter 2.

(If you get this message running add-on software, it means that the additional help file for this software is not present.)

Closing bracket missing

In the formula, there is an opening bracket without a closing one. The cursor marks the probable spot. Each "(" must be matched with a closing ")". See also section 6.7 and *Unable to proceed*.

Colour settings could make display invisible

You have chosen identical colours for the foreground and background; this could make the display invisible on some computers and is not allowed; alter the colour number in the box indicated or elsewhere. See also section 7.5.2 and *Unable to proceed*.

Computer display unsuitable

The computer display is unsuitable for Question Mark: you should only see this message if there is no 80 column screen available, or on hardware that is not compatible with the IBM PC.

Computer unsuitable to run this part of Question Mark

The computer has a version of DOS less than 2.0. Question Mark will not run.

Control information is not consistent with use of branching

You have set branching to be on in the Random page. You have also set in the Control page either that students can pass questions or else go back and change answers. These setting are incompatible. You must either not set these in the Control page, or else turn branching off. See also sections 5.2 and 5.6, and *Unable to proceed*.

Copy would make answer file too big
> There is a limit of 999 sets of answers per answer file; you cannot copy this set of answers into the file, until you delete one of the ones already there.

Copy would make question file too big
> You cannot do this copy, because doing so would breach the limit of 500 questions to a file. If you need a question file longer than 500 questions, you must arrange this by having two separate question files with one calling up the other.

Correct answer given to the student will have duplicate answers in it
> You have specified that if the student gives the same answer to two or more gaps, then this will be marked as wrong. But the correct answer that will be given to the student is the first (top) answer for each gap, and this has duplicates in it. You must amend this, so that the top answer for each gap is different (even if the student is not normally told his/her right answer). See section 6.6.3 and *Unable to proceed*.

Correct answer is out of allowed bounds
> You cannot define a correct answer which the student is not allowed to enter (because it is outside the bounds you have set). See also section 6.4 and *Unable to proceed*.

Data is corrupted - unable to save
> You should never see this message. If you do, it means that the answer file is potentially corrupted. Your answer file editing session is now over, and you cannot save your edits (the original file should be safe). Please contact us, with full details, if you see this message.

Disk error on reading file
> There has been some kind of disk error in reading the .DOC file; perhaps it has become corrupted, or is not an ASCII file.

Disk error while reading graphics data
> There is some operating system disk error while trying to read the file.

Disk error while writing answer file. Cannot continue
> A disk error has occurred during collating, and the collating has to stop. This could be a shortage of disk space, or some other operating system problem.

Disk problem : answer file out of space
> Each answer file can only hold 999 sets of answers and it is not possible to save a 1000th.

Disk problem: cannot save amended picture

There is some disk problem in saving the amended picture, perhaps another file of the same name already there that cannot be deleted, or a shortage of disk space.

Disk problem : critical operating system error

DOS has signalled that a critical disk error has happened. If you are using floppy disks, then either the floppy disk you are using is not formatted, or it is faulty. Or the floppy drive itself may be faulty. If you are using a hard disk, then this error could well be a sign that part or all of your disk is faulty. You should ensure as soon as possible that you have full back-up copies of everything on it. On a network, this could be a sharing or line break problem.

Disk problem : disk full; text file truncated

There is no more room on disk to finish writing the report to the document file. As much of the report as will fit in, has been written, and the partially completed document file does exist. If you are using floppy disks, then you will need to use another disk to store the whole report. If you are using a hard disk, then you will need to delete some files in order to have room for the report. Either way you should re-do the report from scratch.

Disk problem : file corrupted

The file has been corrupted, perhaps by a DOS or hardware fault. Alternatively it may never have been a proper Question Mark file. It cannot be read.

Disk problem : file does not exist

The file you have specified is not there. Perhaps you have spelt its name wrong, or Question Mark is looking for it in the wrong drive or directory.

Disk problem : file is wrong version

The file is produced by a different (and incompatible) version of Question Mark to the software. The current version of the software is shown when you first run Question Mark. You will need to either upgrade the file to this version of your software or to upgrade your software to the latest version of Question Mark. See Appendix B and (possibly) the READ.ME file.

Disk problem : file name illegal

The file name you have specified is not a legal DOS file name. For this function, you must enter a simple file name (up to 8 characters, normally letters or digits without a space in the middle).

You should NOT type the file extension. Question Mark automatically allocates file extensions. You should NOT type any details of drive, directory or path. For this function, Question Mark uses the current drive and directory. Example legal file names are GEOG or TEST32.

Disk problem : file not an answer file

> The file you have specified has the extension .ANS but is not an answer file. Either it has not been created by Question Mark or it has become corrupted (by a DOS or hardware fault).

Disk problem : file not a question file

> The file you have specified has the extension .QUE but is not a question file. Either it has not been created by Question Mark or it has become corrupted (by a DOS or hardware fault).

Disk problem : file not consistent

> The file has become corrupted, perhaps by a DOS or hardware fault, or perhaps by a Question Mark fault. Please contact us if you believe it to be the latter.

Disk problem : file of same name already exists

> You have specified a file for Question Mark to create which already exists. You must either choose a different file name, or delete the file that is already there first.
>
> If you do not understand why this error is happening, then it may be that Question Mark is trying to write to a different disk directory to the one you think it should. Or your file name might clash with a DOS device name. Alternatively, if you are supposed to be overwriting an existing file, then it may be that Question Mark has been unable to delete the old file, and you should now try to make a file with a new name.

Disk problem : file unexpectedly too short

> The file being accessed is shorter than it was when last saved by Question Mark. Possibly it has been corrupted by a DOS or hardware fault. Continued access is not possible.

Disk problem : file write protected - may only be read

> DOS will not permit Question Mark to write to or modify the file you have specified. This may be caused because the file has been made "read only" (which you may be able to change with the DOS ATTRIB command). Alternatively, on a network, this problem can occur if another user is also accessing the file.

Disk problem : floppy disk drive not ready

> The floppy disk drive you are accessing is not ready. Make sure you have put a disk in and closed the door.

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Disk problem : floppy disk write protected

> The floppy disk you want the computer to write onto has a write-protect tab on. Either remove the tab, or put another disk in.

Disk problem : incorrect password

> The file is protected by a password. You have entered it wrongly, and so are not allowed access to the file. See section 11.2.

Disk problem : miscellaneous serious error

> A miscellaneous disk problem has occurred in reading or writing the file. If on a network, this is probably a network error of some kind; otherwise it could happen if you switch floppies around in between accesses to a file.

Disk problem : no room on disk to write file

> If you are saving to floppy disk, then you should be able to recover the situation by putting another floppy disk (eg a formatted blank one) into the drive, and retrying to write to disk. If you are saving to hard disk, or if the file that you are trying to save is too big to fit on one floppy disk, or if you have no other floppy disk available, or if you are editing ar answer file, then you may have lost your most recent work (but not any data you have saved to disk at a prior time).
>
> For future reference, if you use floppies, always have blank, formatted ones to hand; and if you use a hard disk, never let it get nearly full. It is good practice to save regularly, even when you do not need to.

Disk problem : not enough memory to read in file

> There is not enough memory in the computer to read in the file from disk. See section C.4.

Disk problem : path (or directory) does not exist

> The path (drive and/or directory) that you have specified does not exist.

Disk problem : path or file name illegal

> The file description you have specified is not allowed. Your file description must include a file name (up to 8 characters - normally letters or digits). This may be preceded by a path description. A path description is a drive (eg A: or C:) and/or a directory description (eg \ or \QMARK). See section 4.2.4.
>
> You need NOT type the file extension. Question Mark automatically allocates file extensions. Example legal file descriptions are A:GEOG or HISTORY.

Disk problem : too many open files

> This message should only happen in very unlikely circumstances (perhaps when using memory-resident software as well as Question Mark). It means that DOS will not permit Question Mark to access more disk files, because too many files are already being accessed. Try exiting Question Mark to DOS and then return to Question Mark and retry what you were doing. If you get this problem repeatedly, then either there is an error in Question Mark (please contact us) or else your version of DOS is not set up to allow sufficient files to be open (change or add a FILES command to your CONFIG.SYS file).

Disk problem : unable to delete file

> The most likely reasons for the file to be impossible to delete are that it is "read only"; that it does not exist; that it is on a write-protected floppy disk; or that another user (on a network) is using the file.

Error : this box must be between xxx and xxx

> You must enter a number between the figures indicated. Any number outside the range is not allowed: press ESC to restore the original number.

Example correct answer does not fit formula

> You must define an example correct answer to give to the student if he/she gets the question wrong (for all test types). This must be an answer the computer would mark as right using the formula. See also section 6.7 and *Unable to proceed*.

File cannot be renamed to this

> The most likely reason for this message is that a file of the name you want to rename the file to, already exists on the directory.

File name is illegal

> You must enter into this box a legitimate DOS file name, or else disable the file name box. Do not enter a path or an extension. See also the relevant portion of the main manual, and *Unable to proceed*.

Formula too short

> The free format formula is either too short (Question Mark expects something more at the end) or else it is blank (which is not allowed if the question is marked). See also section 6.7 and *Unable to proceed*.

Graphics display mode of picture is incompatible with graphic on Display page

> The graphic on the Display page must have the same number of vertical lines (200, 350 or 480) in its display mode as this graphic. Or if the Display page background graphic is monochrome, so must this graphic be. You must either change the display mode of this graphic (with F2 and Fix), or else disable use of the Display page graphic on this page. See Chapter 7.

Graphics file cannot be displayed on this PC within Question Mark

    Either the graphic file cannot be displayed at all by Question Mark, or else not on this PC. You can find out more from the graphics file viewer accessed via F8. You can only save the page when you have sorted this out, eg assigned a different graphic.

Graphics file cannot be found on disk

    The .PCX, .PCT or .QMG graphics file does not exist on this directory (or the path specified does not exist).

Graphics file does not exist, or cannot be read

    The graphics file you have specified does not exist as a .PCX, .PCT or .QMG file on the current directory, or else it cannot be read. If you specify a graphics file, it must be one that is available on the current directory. Use F8 to interactively choose a name, or to copy in a file from another directory.

Help file found is wrong version

    The help file that has been found is for the wrong version of Question Mark. You should delete any QMARK.HLP file(s) on your system, and re-load the file from your latest distribution disk.

Help not available - please see user manual

    If this message is accompanied by another message, then look under that message. If there is no other message, then this means that the topic you have requested help on is not covered in the help system. Sorry, please try to find the section on what you want in the manual.

If you use topics, you must define at least one topic name

    You have set that topics are to be used, but all the topic name boxes are blank. You must fill in at least one name for a topic, or else set that topics are not to be used. See also section 5.5 and *Unable to proceed*.

Illegal file name

    The box contains an illegal file name, not a legal DOS file name. Enter a proper file name, or leave the box blank. You should not include a path or extension. See also section 12.8 and *Unable to proceed*.

Illegal parameters. No action taken

    The QMRES parameters are not legitimate. Refer to Appendix A for what is allowed.

Inconsistency error, see manual

> You should never see this message. If you do get it, please contact us with full details. The question file you are about to save is faulty: sorry, but it cannot be used. Please save it to a new file name (do not use the Same option or you will corrupt your old data), and send the file to us, or if you do not wish to do this, quit the session without saving. The most you have lost is the results of this editing session.

Insufficient memory to prepare report

> This report cannot be produced. See section C.4.

Insufficient memory to create new file

> There isn't enough memory to create the new question file. You might find it worth trying question banking from the delivery software in case this helps. See section C.4. You may need to reduce the number of questions, or stop using student help if you are using it.

Insufficient memory to proceed

> You should be able to continue copying sets of answers by saving the answer file to disk (using F10 twice) and retrying. See also section C.4.

It is larger than 640x480 pixels, and cannot be displayed by Question Mark

> Question Mark only supports graphics that can be displayed on a VGA display. This picture is too large, horizontally or vertically or both, and cannot be used within Question Mark. You need to use an external graphics editing program to reduce its size.

It is not a valid .PCX file

> Although this file has extension .PCX, .PCT or .QMG, it seems to be corrupted. Or it may have been created by a program that uses a different version of the .PCX specification. Very, very large .PCX files may also give this message. See also section 7.2.7.

It is too large for this PC, and cannot be displayed

> This picture could be displayed on a VGA PC, but cannot be displayed on this, lower resolution PC.

It uses a colour format not supported by the software (eg 256 colours)

> Question Mark only supports 2-colour and 16-colour .PCX files, and this picture is a different number of colours, or is structured wrongly. The only way you can use it with Question Mark is to use an external graphics editing program to amend it, and save it in a format Question Mark can read.

Mis-spelt score is not between wrong and right scores

> You must set this score to the right score, the wrong score, or to something between the two. If you do not want the computer to look for mis-spellings then put 'N' in the "Mis-spelling counts?" box. See also section 6.5 and *Unable to proceed.*

More golden questions than number to choose

> You have defined more questions to be golden than there are questions to be selected in all. You must either choose to select more questions or to select fewer golden ones. See also section 5.6 and *Unable to proceed.*

More than 21 lines of information text

> One of the help texts is more than 21 lines long (the maximum allowed), and so the student help file has not been created. Remember that blank lines count as lines unless they start with an asterisk to show they are comments. See section 12.6.

Name is already being used by another .PCT/.PCX/.QMG file

> The file cannot be copied, because another file has the same name (although maybe a different extension).

New question file created, but too many topics. Please edit before using

> The new question file has been made, but there were more topics needed in it than are possible (limit of 12). Please edit the question file to review the topic names and allocation of questions, before using it. See section 12.8.

No ASCII files found

> There are no .DOC files on the current directory to import or make a help file from. If you need to import a file on a different directory, you will have to make it current, or copy it into this directory from DOS.

No closing quotation mark

> In the formula, there is an opening quotation mark without a closing one. The cursor marks the probable spot. See also section 6.7 and *Unable to proceed.*

No information text following question number line

> There is no help text after the question number line. You must have something, even a blank line, between two question number lines. Refer to section 12.6.

No memory to create more students

> There isn't any more memory available to add students to the validation file. You must either use a machine with more memory, or create several validation files. See also section C.4.

No memory to load character table

Loading the table of characters requires a small amount of memory, but this is not available, and you cannot load it. See section C.4.

No questions found to import

No questions were found in the Ascii file, and so no question file has been created. Use a question mark "?" to start questions, as described in section 12.5.

No relevant answer files found on this disk

No answer files have been found on the disk or directory corresponding to the conditions you have set up. If this is surprising, please check the conditions and the path being used. See section 9.3.

Not enough memory available

See section C.4. You may want to divide the .DOC file into two to alleviate this problem.

Not enough memory available to read in file

There isn't enough memory to read and display the graphics file. If you get this message while editing a question file, try exiting and viewing the graphics from the graphics file viewer directly from the Directory screen. Much more memory is available there. See also section C.4.

Not enough memory to convert this file

See section C.4. As a last resort, we may be able to convert the file for you if you send it to us.

Not enough memory to do this

There is not enough memory to load a program overlay file. This should only happen if there is unusually little free memory on your machine - perhaps if another program is taking a large chunk of memory for its use. See section C.4.

Not enough memory to load help information

Help information is stored on disk and loaded into memory when it is needed. Sorry, but you are very close to using all available memory at present, and none is spare to hold the help wording. See section C.4.

Not enough memory to read in file

There isn't enough memory to hold the .DOC file. Refer to section C.4. You may need to shorten the file.

Not enough memory to save new picture

 There isn't enough memory to structure the graphic for saving. If you get this message while editing a question file, try exiting and amending the picture from the graphics file viewer directly from the Directory screen. Much more memory is available there. See also section C.4.

One question number has two sets of information text defined for it

 There are two pieces of help information for one question in the .DOC file, which is not allowed. You must edit the file appropriately. See section 12.6.

Out of memory - cannot continue

 There isn't enough memory available to do what you are trying to do. You can still carry on to do other things (including saving the file). See section C.4.

Please plug the copy protection device into your printer port

 Your copy of Question Mark is copy-protected so that it can only be used with a copy protection "dongle". You must plug this into the printer port at the back of your computer before you can use Question Mark. (You then plug any printer into the dongle.) If you have problems with using the dongle, please contact your dealer or us.

Plus sign not allowed within brackets

 The plus sign in a formula divides parts of the formula at the highest level, and makes the computer search for first one and then the other. You cannot put it in brackets. See also section 6.7 and *Unable to proceed*.

Possible total score is out of bounds

 Whatever combination of answers the student chooses in a multiple response question, the score for one question is not allowed to be greater than 99 or less than 99. With the scores that you have specified it is possible for the score to be outside these bounds. You will have to change the scores so that the positive ones add up to 99 or less, and that the negative ones add up to -99 or more. See also section 6.9 and *Unable to proceed*.

Printing stopped - press "A" to abandon, "C" to carry on

 The printer has reported an error. This could be due to lack of paper, some problem in how you have set up the printer, how you have set up DOS or Question Mark to interface to the printer, or for other reasons. If you can rectify the problem, do so, and press 'C'. Otherwise press 'A'.

Problem in reading answer file

 This message tells you where the disk problem is happening. See the message on the next line for the nature of the problem.

Problem in reading help data

There has been a disk read error while trying to read in the help data. If the help file was on floppy disk, perhaps you have taken out the disk with the help file on; put it back in and try pushing F1 again. Otherwise try exiting Question Mark and re-entering. If neither of these work, possibly the help file has become corrupted (re-copy it from the distribution disk).

Problem in reading question file

This message is followed by a message on the next line which tells you more. Sometimes the name of the problematic question file is given too.

Problem loading overlay file

This message is usually accompanied by another message which tells you more information (and which you can look up in this Appendix). It means that the main software cannot load part of itself and therefore cannot do what you want it to.

Problem reading validation file

The reason for the problem should be displayed on the line below this error message. See also section 12.7.

Problem with one or more files. Unable to complete for all marked files

There has been a problem doing what you have asked for all the marked files, and it has not been done for one or more of them.

Problem writing to spreadsheet file

There has been a problem writing to the .WKS spreadsheet file, possibly a lack of space on disk, or some other disk problem.

Problem writing validation file

The reason for the problem should be displayed on the line below this error message. See also section 12.7.

Program file seems to be corrupted

There is a serious problem with an overlay file, the name of which is on the line above. Most probably, the file has been corrupted by something outside Question Mark. If you get this problem and cannot work out why it is happening, please send a copy of your QM.EXE and overlay files to us, and we will see if we can help.

QMRES not there

You have asked to unload QMRES from memory, but it is not there to unload.

Question file does not have enough questions or right topic

The question banking you have set up does not work, because one of the question files referenced does not have enough questions in the file or in a specified topic (or the topic does not exist). The name of the problem file should be shown on the line above. Please review the question banking data. See section 12.8.

Question number line has no number or is wrong format

A question number line should start with an exclamation mark and continue immediately (no spaces) with a valid question number. The .DOC file is wrong, and you should edit it. See section 12.6.

Question numbers are repeated

You have repeated a number twice in the list of golden questions. This does not make sense, and you must go back and change this. See also section 5.6 and *Unable to proceed*.

Report impossible - answer file has incompatible data

There is a problem of incompatible data in the answer file - see section 10.5 for an explanation of incompatibilities.

Save of answer file not possible

The answer file cannot be saved. The next line gives the reason why. You can try to correct the error and save again. If that fails too, you will have to quit and re-do your editing.

Score bands are not ascending

Each score band box must be strictly greater than the one to its left. See section 5.4 and *Unable to proceed*.

Score for partially right is more than score for all right

If the student gets all the gaps right except one, he/she will get a higher score than if he/she gets them all right. This is not allowed, and you must either increase the score for being right, or decrease the score per gap. See also section 6.6 and *Unable to proceed*.

Score if inexact not between wrong and right scores

You must set this score to the right score, the wrong score, or to something between the two. If you do not want any special action if the student gets the answer close but not exact, then set the box to the right of the plus-or-minus sign to 0. See also section 6.4 and *Unable to proceed*.

Second graphics picture is incompatible with main or Display page graphic
> This graphic must have the same number of vertical lines (200, 350 or 480) in its display mode as the main graphic and Display page graphic. Or if that picture is monochrome, so must this one be. You must either change the display mode of this graphic (with F2 and Fix), or else disable use of the Display page graphic on this page. See Chapter 7.

Sorry, cannot display this graphics file
Sorry, cannot read this graphics file
> See the error message below this message for further explanation.

Sorry, limit of 2000 students
> There is a maximum of 2,000 student names that can be held in one validation file, and you cannot exceed this. If you need more than this number of names, then you will have to make two or more validation files, and use different ones for different groups of students.

That is not an available student or number
> You must type in either a student name whose answers are in the answer file, or else the number of a set of answers. Some of the numbers and names are shown on the screen now, and you can get a full list from the Marks report, or by pressing Enter on the answer file from the directory screen.

That name is already in the file
> The student name you have entered is already in the file, and cannot be duplicated. Names are treated the same in upper and lower case.

There are too many dashes in one or more of the gaps
> One of your groups of dashes in the question wording is longer than Question Mark allows. See section 6.6 for the maximum limits that are allowed.

There are too many or too few gaps defined in the question wording
> There is a mis-match between the number of rows of dashes you have put in the question wording, and the number of gaps you have specified in the box on the left of the screen. You must correct this; remember that all occurrences of the dash character in the question wording count as gaps, even if you mean them to be something else. See also section 6.6 and *Unable to proceed*.

There must be more points for getting the question right than wrong
> You cannot define a question with fewer points for getting it right than for getting it wrong. See also section 6.2 and *Unable to proceed*.

This answer may not be blank
> You cannot leave an answer in a multiple choice, matching/ranking, logical or multiple response question blank. Either fill it in, or reduce the number of answers in the question. See also Chapter 6 and *Unable to proceed*.

This box is less than one of the correct answer numbers
> You have defined here a maximum number that students can use to match with, but one of the correct answers on the right of the screen is higher than this. You must increase this box or reduce the correct answers. See also section 6.8 and "Unable to proceed".

This box may not be blank. You must either have no graphics, or else set it
> Either set the box to the left of this box to 'N', or else fill in a name in this box. See also Chapter 7 and *Unable to proceed*.

This file is used twice, which is only allowed with different topics used
> This question file name (where the cursor is) is referenced twice in such a way that it would be possible for the same question to be used twice in the new question file. This is not allowed. You can only reference the same file twice if a different topic is used each time, because then a question cannot be repeated. See also section 12.8 and *Unable to proceed*.

This file is Version 3 or greater, and does not need (or cannot) be converted
> This file is in the Version 3 format, and so does not need conversion. Please refer also to the READ.ME file and on-line help in case version information has changed since writing this manual.

This file name should not be blank
> You have asked for one or more questions from this file, but you have left the file name box blank. Either fill it in, or remove the questions. See also section 12.8 and *Unable to proceed*.

This file uses Logical questions, and cannot be converted
> Version 2 of Question Mark does not support logical questions. These were introduced in Version 3. To convert this file, you must first edit it, and remove the logical questions, or change them to questions of a different type.

This is a Version 1 file. You need other software to convert it
> You need the XFER2.EXE program. Refer to Appendix B for details.

This is a Version 2 file, and needs to be converted before you can use it
> You must convert this file - see Appendix B for how to do it.

This is not an acceptable date
> This date is not allowed, because it is not possible.

This picture already uses the standard palette
>You cannot change the palette of the picture to standard, because it is already standard. If you want to change the palette, you will have to use a graphics editing program.

This picture cannot be displayed on this PC
>This is PC with a text-only (or Hercules or non-standard display) and it cannot be used to make a graphical version of this picture.

This picture cannot be fixed or altered by the software
>Try to view the picture for more information on why this is.

This picture can only be displayed in 640x480 mode
>This picture is too large to be displayed in 200 or 350 line modes. If you need to do this, you must Cut it first and then Fix it.

This topic does not exist in the file
>The topic you have specified does not exist in the question file. Use F8 to choose a topic name interactively.

This topic has questions, but the box is blank. Set it (or turn topics off)
>You have allocated questions to this topic number, but you have not defined a topic name. You must set the topic name or disable topics. To remove the allocation of questions, escape from this page and re-allocate them with the space bar before changing the Topics page. See also section 5.5 and *Unable to proceed*.

Too many closing brackets
>In the formula, there are too many closing brackets. The cursor marks the probable spot. Each "(" must be matched with only one ")". See also section 6.7 and *Unable to proceed*.

Unable to create .HLP file due to disk problem
>The nature of the problem should be described underneath this message. Refer also to section 12.6.

Unable to create .HLP file for new question file
>There has been a disk problem either reading student help during question banking, or else in writing the new student help file for the new question file. Perhaps a file has got corrupted, disk space has run out, or an existing help file cannot be deleted.

Unable to convert answer file as one or more sets of answers are too big

Each set of answers in Version 3 takes up slightly more memory than in Version 2. One or more of the sets of answers in this file becomes too large in Version 3, and cannot be converted. You are very unlikely to see this message, but if you do, you may be able to convert some sets of answers by copying them to a different file.

Unable to convert questions as cannot create new .PCX/.PCT file
Unable to convert questions as cannot read .QMI graphics image file

The reason for the problem should be shown below this line. If you want to convert the question file without the graphics, remove or rename the .QMI file, and you will be able to do so.

Unable to delete existing setup file

There is a file QMARK.CFG on the chosen directory which cannot be deleted. Perhaps it has been set to read only, or it is on a write-protected floppy disk. It is not possible to save new setup data in this directory, unless the protection against deleting is removed.

Unable to print : printer is not ready

DOS is reporting that the printer is not ready, and so the report cannot be printed. Possible remedies are to: turn the printer on-line, or on if it is off; put paper in the printer; check the printer cable; set up Question Mark for the printer (see 12.2.4); or send the report to a disk file, and use DOS to print the file.

Unable to proceed

You get a message commencing with *Unable to proceed* whenever you press F10 (and sometimes F5) to finish editing or creating information by filling in boxes, and the information is not complete. The position of the cursor shows you which box needs filling in. If you want to quit editing, use F9 or ESC. Before you do anything else, you must press ESC to clear the error message.

There is another message on the next line (which you can look up in this Appendix) saying what is wrong.

Unable to save as existing files cannot be overwritten

One of the files to be copied cannot be deleted from the destination drive or directory. This may be because the disk is write-protected or the file is read-only. You must deal with this before you can save the files.

Unable to save as one or more files missing

The display should show the missing files. All files (except the setup file and delivery software) must be on the same directory. See section 8.1.3.

Unable to save as too many free format questions with long answers

Student free format answers, especially multiple line answer ones, can take up a lot of space in the answer file, and there is a limit on the number of multiple line free format questions you can have. This is quite a high limit, but you have reached it.

In order to save the file, you must reduce the number of free format questions, especially ones with multiple line answers. The simplest way of doing this is to edit several free format questions and change them from multiple line to single line answer ones. If you need to have a test with very many multiple line answer free format questions, you will have to split up the file into parts.

Unable to save as too many questions to be selected randomly. Please amend.

You have specified in the Random page that a certain number of questions are to be selected randomly, but there are fewer than this number of questions in the whole file (or in a topic). You will now go back to the Random page, where you should re-set the number of questions to be selected.

Unable to save as total score is out of bounds

The possible total score for the whole test is outside the range of -32768 to 32767. You must edit some of the questions to reduce the possible scores; see also section 5.4.

Unable to save due to problem in copying

There has been a problem copying one file, and the saving of all files has been stopped. There should already have been an error message explaining the problem with the one file.

Unable to write to .DOC file of this name

There is some disk problem in creating the .DOC file for the graphic.

Unexpected character

In the formula, an unexpected character (at the cursor position) has been found. See also section 6.7 and *Unable to proceed*.

Warning - cannot show all files

There is a limit of the number of files of each type that Question Mark can display, and there are too many files on this directory. Not all the files are displayed. You may want to re-organise your directory structure to split the files among more than one directory.

Warning: graphics will not be included in the question paper
> The question file includes graphics in one or more questions or pages, but Question Mark does not support printing out of graphics. The question paper will be produced without the graphics.
>
> If you need to include the graphics, you will have to use an external word-processor or desk-top publishing program to add them in.

Warning - not all questions copied
> Because of a shortage of memory, some but not all of the questions have been copied.

Warning: one or more question files found cannot be read
> There is a problem accessing all the question files on the current directory. This could be a disk error, some files being the wrong version, or there being too many files. The marking information may not be reliable.

Warning - question and answer files may not fit each other
> The question file found is not the same one as used to create the answers - the report will be produced but could be in error. See the full explanation in section 10.5.

Warning - there will only be room to tell the student of the first 18 of these
> The delivery software only displays to the student a list of up to 18 special keys (the most that will fit on one line). You can use more than this, but only the first 18 will be shown to the student. See section 5.7.

Warning - too many topics for test. Please review topic allocation
> Because of the topics referenced by the questions you have just copied, the limit of 12 topics per test has been reached, and some questions have had to be allocated to the wrong topic. Please review the topic names and question allocations before proceeding. See also section 5.5.

Warning: you have changed question order and may need to edit .HLP/.QMM files.
> During your editing session, you have changed the order of questions (eg copied, moved, deleted or inserted them). There is a Multimedia or student help file associated with this question file, and you will probably need to edit this associated file to mirror the changes you have just made.

Warning - you have chosen more questions to choose than there are
> You have chosen more questions to choose randomly than are presently defined (in a topic or in the whole file). You will need to create or allocate more questions, or else amend this, before saving the question file to disk. See section 5.6.

Word mis-spelt

In the formula, the word AND, OR or NOT is started but not finished (or you may have your quotation marks out of place). The cursor marks the place Question Mark is unhappy with in the formula. See also section 6.7 and *Unable to proceed.*

You cannot choose more than 500 questions in all

The total number of questions to be selected cannot be more than 500, as this is the maximum allowed in a question file. See section 5.6 and *Unable to proceed.*

You cannot delete the last set of answers

An answer file must always have at least one set of answers. If you copy another set of answers into the file, you can delete this one; or you can delete the whole file from the directory screen if you want to do that

You cannot have a total of more than 500 questions

A Question Mark question file can contain a maximum of 500 questions, and you cannot create a larger one than this with question banking. You must reduce some of the numbers of questions to be chosen. See section 12.8 and *Unable to proceed.*

You cannot save to the current directory

You have typed in a path that is the same as the current directory the question file is already on. This is not allowed.

You cannot turn topics off, as they are used in the Random page

The Random page references topics, by selecting questions at random from different topics. You cannot change the Topics page to remove topics while these references remain. You must first escape from this page, and edit the Random page.

You must choose questions from at least one topic

There must be at least one question presented to the student.

You must enter one of the files mentioned

This report only works on sets of answers derived from the same question file. This answer file contains answers from more than one question file name; so you must select the question file name you want to use for this report. You should type in the full name of one of the question files that was offered to you, or press ESC not to make the report.

You must have some questions
> You have defined question banking so that no questions are to be selected. A question file must have at least one question, and this is not permitted. See section 12.8 and *Unable to proceed*. You can escape from this page using F9 if you do not want to set up question banking.

Your PC does not support displaying this number of colours
> Your PC cannot display this type of graphics.

C.4   Memory shortage

Question Mark uses the computer's memory (RAM) to store data for you while you are reading, changing or creating it. If your data files are large, they may get too large for Question Mark to be able to hold them in memory.

Note that free format questions and answers tend to take up larger amounts of memory than other question types. Also the main software uses much more memory than the delivery software; if you can create a file in the main software, you should never run into memory problems with the delivery software for that file on the same computer.

Memory problems will come to your attention by a message in the command area of the screen, typically when you try to read a file or when you try to add a bit more data into it. You will not lose data or suffer other serious problems if you run out of memory: you will just be restricted in what more you can do.

There is no sure-fire way round shortage of memory - basically you are asking the computer to do something which it cannot, but here are some stratagems which may be worth trying.

- You can exit and re-enter Question Mark. Sometimes memory can get fragmented and broken up into little pieces by the computer in such a way that a big contiguous chunk for your new data may not be

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available. It may be worth exiting Question Mark to DOS (after saving your data if applicable) and re-entering and trying to do the same thing again. This may sometimes help a little.

● You can get more memory from DOS. If you have any memory-resident programs (including for example a mouse driver, the DOS Print utility or various pop-up utilities) remove them and only install them when you need them - they are taking up memory that you need. You may also be using up memory (especially if you use a RAM disk) by various commands in your CONFIG.SYS file - see your DOS manual. If you are using a version of DOS less than 5, it may be worthwhile considering upgrading to DOS 5 or 6, as this can free up a lot of memory.

● If your computer has less than 640K of memory (the maximum usable under DOS), then upgrade it to 640K. Higher amounts of memory will not help, except that you may be able to free up memory below 640K using DOS if you have more memory.

● If the problem relates to graphics, or to a question file that uses graphics, you may need to cut down the size of your graphics files. Editing graphics uses less memory from the graphics file viewer called from the Directory screen than while editing a question file, so if you cannot edit graphics from editing a question file, just type in the names, and do the cutting etc. elsewhere. Similarly you may be able to edit a large question file, but not be able to try out the questions with graphics in them.

● Splitting question or answer files into two can reduce the amount of memory used.

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