OCR GCSE (J277)

Module H: Software

Workbooklet · 5 parts · 103 marks

H1, H6 and H7 are IGCSE (Cambridge) only and not on J277.

Contents

Part	Topic	Marks
H2	What an operating system does	21
H3	Memory management and multitasking	20
H4	Peripheral management, drivers and the user interface	20
H5	User management and file management	20
H8	Utility software: defragmentation, compression and encryption	22
	Total	**103**

MODULE H SOFTWARE · H2

What an operating system does

Original practice questions · 21 marks · ~25 minutes · OCR J277 spec 1.5.1

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **21 marks**.

1

Total: 3 marks

A veterinary practice has a computer on its reception desk. The receptionists use it to book appointments and send emails. The computer has an operating system.

(a) State the purpose of the operating system on the reception computer. **[1]**

(b) The operating system provides a user interface. Give **two** features of a user interface that the receptionists could use. **[2]**

1

2

2

Total: 4 marks

A new receptionist has written some notes about the operating system.

(a) Tick (✓) **one** box in each row to show whether each statement is true or false. **[4]**

Statement	True	False
Memory management transfers a program's instructions from secondary storage into RAM when the program is opened.		
Multitasking means one program being used by several users at the same time.		
User management lets an administrator control which files each user is allowed to open.		
Peripheral management is the function that lets the user create, name and move folders.		

3 **Total: 4 marks**

The practice buys a label printer. The receptionists will print a label for each sample that is sent to a laboratory.

(a) Explain why the operating system needs a device driver before it can use the label printer. **[2]**

(b) Explain why the operating system needs to manage the transfer of data between the processor and the label printer. **[2]**

4 **Total: 4 marks**

A receptionist has the booking program, an email program and a music player open at the same time.

(a) Describe how the operating system's memory management allows these three programs to be open at the same time. **[3]**

(b) The receptionist closes the music player. State what memory management does with the memory that the music player was using. **[1]**

5 **Total: 6 marks**

Three vets and two receptionists share one computer in the practice office. Each vet writes clinical notes about the animals they treat. The receptionists need to open the appointment files, but they must not be able to open or change the clinical notes. The practice also wants every file to be easy to find.

(a) Explain how the operating system's **user management** and **file management** functions can help the practice. **[6]**

Total for this worksheet: 21 marks

MODULE H SOFTWARE · H3

Memory management and multitasking

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 1.5.1, 1.2.1

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 5 marks

(a) State what is meant by **multitasking**. **[1]**

(b) Tick (✓) **one** box in each row to show whether each statement about memory management and multitasking is true or false. **[4]**

Statement	True	False
When a program is opened, the operating system transfers its instructions and data from secondary storage into RAM		
Memory management makes every open program share the same area of memory		
When a program is closed, the memory it was using can be allocated to another program		
Multitasking means the processor finishes one program completely before it starts running the next program		

2 **Total: 7 marks**

A freelance video editor uses a laptop with 8 GB of RAM. The table shows how the RAM is being used while she works.

Software	RAM in use
Operating system	2 GB
Video editing program	3 GB
Music player	0.5 GB
Web browser	1.5 GB
Free (not allocated)	1 GB

(a) Describe what memory management does when the editor opens the video editing program. **[3]**

(b) Describe how memory management allows the editor to have all of these programs open at the same time. **[3]**

(c) The editor closes the music player. State what memory management does with the 0.5 GB of RAM that the music player was using. **[1]**

3 **Total: 3 marks**

The laptop's processor has **one** core. The editor is cutting a video while the music player plays music and the web browser downloads a file.

(a) Explain how the operating system lets all three programs appear to run at the same time. **[3]**

4 **Total: 5 marks**

All the programs in the table in Question 2 are open. The editor then opens a large project in the video editing program. The project needs another 2 GB of RAM.

(a) Explain why the laptop needs to use virtual memory in this situation. **[2]**

(b) Describe how the operating system uses virtual memory so that the editor can work on the project. **[3]**

Total for this worksheet: 20 marks

MODULE H SOFTWARE · H4

Peripheral management, drivers and the user interface

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 1.5.1

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 4 marks

A graphic design studio has a desktop computer. A keyboard, a graphics tablet and a large-format printer are connected to it. Its operating system carries out peripheral management.

(a) Tick (✓) **one** box in each row to show whether each statement is true or false. **[4]**

Statement	True	False
Data is transferred between the peripherals and the processor.		
The transfer of data between the peripherals and the processor does not need to be managed.		
A device driver is a piece of hardware fitted inside the printer.		
The printer and the graphics tablet each need their own device driver.		

2 **Total: 5 marks**

The studio's new printer will not print until its device driver has been installed.

(a) Describe what a device driver does. **[2]**

(b) Explain why the computer cannot use the printer's device driver to communicate with the graphics tablet. **[2]**

(c) A few months later, an updated version of the printer's device driver is released. Give **one** reason why the studio should install the updated driver. **[1]**

3 **Total: 3 marks**

A designer opens a poster on the computer and chooses to print it on the large-format printer.

(a) Describe how the operating system manages the printer while the poster is printed. **[3]**

4 **Total: 4 marks**

The operating system on the studio's computer provides a graphical user interface (GUI).

(a) Describe the purpose of a user interface. **[2]**

(b) Identify **two** features of a GUI that a designer could use to open a file. **[2]**

1 .....

2 .....

5 **Total: 4 marks**

The studio plugs a new scanner into the computer. The screen shows this message:
"Scanner connected. No driver found for this device. The scanner cannot be used yet."

(a) Explain why the scanner cannot be used yet, and what needs to happen before the studio can use it. **[4]**

Total for this worksheet: 20 marks

MODULE H SOFTWARE · H5

User management and file management

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 1.5.1

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 3 marks

A small events-planning company has one desktop computer in its office. It is shared by a manager, a bookkeeper and three event planners. The operating system provides user management.

(a) A new event planner joins the company. The manager allocates an account to the new planner. Give **two** things that are set up for the planner when the account is allocated. **[2]**

1

2

(b) State the type of user account the manager must log in with to create accounts for other members of staff. **[1]**

2

Total: 4 marks

(a) Tick (✓) **one** box in each row to show whether each statement about the operating system is true or false. **[4]**

Statement	True	False
Access rights can allow one user to edit a file while another user can only view it.		
The operating system keeps a record of where each file is stored.		
Copying a file removes it from the folder it was in.		
A folder can be stored inside another folder.		

3 **Total: 2 marks**

The operating system on the office computer locks a user account after three incorrect password attempts in a row.

(a) Explain how this feature helps to keep the files on the computer secure. **[2]**

4 **Total: 5 marks**

Part of the folder structure on the office computer is shown below.

```
Company
├── Clients
│   ├── Weddings
│   │   └── venue-list
│   └── Conferences
└── Accounts
    └── pay-2026
```

(a) A planner wants the file **venue-list** to be in the **Conferences** folder as well, while the original stays in the **Weddings** folder. State the file management task the planner should use. **[1]**

(b) Describe the difference between **moving** a file and **copying** a file. **[2]**

(c) The bookkeeper saves a new file in the **Accounts** folder. Describe what the operating system does when the file is saved. **[2]**

5 **Total: 6 marks**

The **Accounts** folder holds the staff pay records. The manager wants the computer to work like this:
- the bookkeeper can open and edit the files in **Accounts**
- the event planners cannot open anything in **Accounts**
- the event planners can open and edit the files in **Clients**
- the bookkeeper can view the files in **Clients** but cannot change them.

(a) Explain how the operating system's user management and file management can be used to meet the manager's needs. **[6]**

Total for this worksheet: 20 marks

MODULE H SOFTWARE · H8

Utility software: defragmentation, compression and encryption

Original practice questions · ~25 minutes · 22 marks · OCR J277 spec 1.5.2

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **22 marks**.

1

Total: 4 marks

A small architecture practice has an office computer. The computer came with an operating system and some utility software already installed.

Tick (✓) **one** box in each row to show whether each task is carried out by the operating system or by utility software. **[4]**

Task	Operating system	Utility software
Rearranges the hard disk so that the parts of each file are stored next to each other		
Decides how much RAM each running program is given		
Reduces the size of a large video file so that it takes up less storage space		
Gives each person who uses the computer their own account and login		

2

Total: 4 marks

The office computer stores its files on a magnetic hard disk drive. The diagram shows 12 blocks on part of the disk. A1 is the first part of File A, A2 is the second part of File A, and so on. An empty block is free space.

Before defragmentation

1	2	3	4	5	6	7	8	9	10	11	12
A1	**B1**		**A2**	**C1**	**B2**		**A3**	**C2**		**B3**	

(a) Complete the diagram below to show how these blocks could be arranged after the disk has been defragmented. **[2]**

After defragmentation

1	2	3	4	5	6	7	8	9	10	11	12

(b) Explain how defragmentation changes the way the read/write head moves when File A is opened. **[2]**

3

Total: 4 marks

Tick (✓) **one** box in each row to show whether each statement about utility software is true or false. **[4]**

Statement	True	False
Defragmentation software makes each file on the disk smaller.		
Encryption software stops data from being intercepted when it is sent across a network.		
A compressed file can usually be sent across a network more quickly than the original file.		
Defragmentation is not needed on a solid-state drive.		

4 **Total: 4 marks**

The practice sends a folder of building drawings to a client by email. The folder is 30 MB. The practice's email service only accepts attachments of up to 25 MB.

(a) Explain why the practice uses compression software on the folder before sending it. **[3]**

(b) The practice also compresses the files from finished projects before storing them on its server. State **one** reason why. **[1]**

5 **Total: 3 marks**

The practice emails signed contracts to its clients over the internet. Before each contract is sent, the practice uses encryption software on it.

(a) Explain how the encryption software protects a contract if it is intercepted on its way to the client. **[2]**

(b) State what the client needs to turn the encrypted contract back into its original form. **[1]**

6 **Total: 3 marks**

The practice's new office manager says: "The operating system already looks after the computer, so we can remove all of the utility software."

Explain why the office manager is wrong. Refer to the practice's computer in your answer. **[3]**

Total for this worksheet: 22 marks