

## 1.5 – Systems software – Past Exam Questions (Note: You can ignore questions on backup)

| 1.5 – Systems software   |  |
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| Sub topic  | Guidance   |
| <b>1.5.1 Operating systems</b>   |  |
| <input type="checkbox"/> The purpose and functionality of operating systems: <ul style="list-style-type: none"> <li>○ User interface</li> <li>○ Memory management and multitasking</li> <li>○ Peripheral management and drivers</li> <li>○ User management</li> <li>○ File management</li> </ul> | <p><b>Required</b></p> <ul style="list-style-type: none"> <li>✓ What each function of an operating system does</li> <li>✓ Features of a user interface</li> <li>✓ Memory management, e.g. the transfer of data between memory, and how this allows for multitasking</li> <li>✓ Understand that:               <ul style="list-style-type: none"> <li>▪ Data is transferred between devices and the processor</li> <li>▪ This process needs to be managed</li> </ul> </li> <li>✓ User management functions, e.g.:               <ul style="list-style-type: none"> <li>▪ Allocation of an account</li> <li>▪ Access rights</li> <li>▪ Security, etc.</li> </ul> </li> <li>✓ File management, and the key features, e.g.:               <ul style="list-style-type: none"> <li>▪ Naming</li> <li>▪ Allocating to folders</li> <li>▪ Moving files</li> <li>▪ Saving, etc.</li> </ul> </li> </ul> <p><b>Not required</b></p> <ul style="list-style-type: none"> <li>✗ Understanding of paging or segmentation</li> </ul> |
| <b>1.5.2 Utility software</b>  |  |
| <input type="checkbox"/> The purpose and functionality of utility software<br><input type="checkbox"/> Utility system software: <ul style="list-style-type: none"> <li>○ Encryption software</li> <li>○ Defragmentation</li> <li>○ Data compression</li> </ul>                                   | <p><b>Required</b></p> <ul style="list-style-type: none"> <li>✓ Understand that computers often come with utility software, and how this performs housekeeping tasks</li> <li>✓ Purpose of the identified utility software and why it is required</li> </ul>   |

## Sample Paper

- 9 A restaurant has a computer-based ordering system which is running slowly. A technician has said that the hard disc drive is fragmented. The technician has suggested using utility software to defragment the drive.

(a) Explain how the restaurant's hard disc could have become fragmented.

[illegible]

**(b)** Explain how defragmentation software could overcome the issue of the slow computer system.

[3]

2021

- 2 Layla uses her computer to create educational games.

Layla makes use of system software.

- (a) One type of system software is the operating system.

Identify and describe **two** functions of an operating system.

Function 1 .....

Description .....

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.....

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Function 2 .....

Description .....

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.....

[6]

- (b) Layla also uses utility system software.

- (i) State the purpose of utility system software.

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..... [1]

- (ii) Layla uses a backup utility. She performs both full and incremental backups.

Explain the reasons why Layla performs both full and incremental backups.

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.....

..... [3]

2020

5 Ali's tablet computer has an operating system.

- (a) Complete the following description of the functions of an operating system by selecting the appropriate missing words from those in the box.

|        |             |             |           |           |              |
|--------|-------------|-------------|-----------|-----------|--------------|
| user   | drivers     | directories | hardware  | interface | multitasking |
| output | peripherals | printers    | processor | RAM       | utility      |
| ROM    | running     | passwords   | faster    | volatile  | virtual      |

The operating system provides a user ..... . This displays the output to the user and allows the user to interact with the .....

The operating system controls the movement of data from secondary storage to ..... and vice-versa. This is known as memory management.

The operating system can only perform one process at a time, but by managing the memory the computer can appear to be completing more than one process at a time. This is known as .....

An operating system allows device ..... to be installed to allow an external piece of hardware to interact with the .....

The operating system provides security through user accounts and ..... . It also creates and maintains a file system to organise files and ..... [8]

- (b) Ali runs defragmentation analysis on his magnetic hard disk. Parts of the results are shown.



|             |            |
|-------------|------------|
| Dark gray   | File 1     |
| Medium gray | File 2     |
| Light gray  | File 3     |
| White       | Free space |

- (i) Explain how defragmentation will change how the files and free space are arranged on Ali's hard disk.

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 .....  
 .....  
 .....  
 .....  
 .....  
 ..... [3]

- (ii) After defragmentation, Ali's computer is able to access files faster.

Explain why Ali's computer can access the files faster after defragmentation.

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..... [2]

- (iii) Give **three** additional examples of utility programs.

1 .....

2 .....

3 ..... [3]

2018

- (c) William's computer has utility programs installed including automatic backup.

- (i) William can choose between a full or incremental backup.

Identify the backup method William should use to backup the computer, justifying your choice.

Method: .....

Justification: .....

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..... [3]

- (ii) Give **one** additional utility program William could make use of and describe how he would use it.

Utility program: .....

Description of use: .....

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.....

..... [3]

2015

- 4 Security on a computer can be provided directly by the operating system or by using utility programs.

(a) Utility programs include antivirus, file transfer, firewall and system cleanup.

State which **two** of these utilities can be used for security.

1 .....

2 ..... [2]

(b) Identify and describe **two** methods by which the operating system can provide additional security directly.

1 .....

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2 .....

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..... [4]

Some extra questions

- (b). Explain why memory management is necessary.

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----- [3]

- 2 A software company decides to build an operating system for OCR smart watches.

(a) Memory management is one of the functions of an operating system.

(i) List **three** functions, other than memory management, of an operating system.

1 .....

2 .....

3 ..... [3]