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