1.3 Secondary Storage: Test Pack

OCR J277 · Calculators not allowed · about 20 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Secondary storage is used in a huge range of computer systems, from smartphones to supercomputers.

(a) State what is meant by the term 'secondary storage'. **(1)**

(b) Give two examples of secondary storage devices. **(2)**

(c) State one reason why a computer needs secondary storage as well as RAM. **(1)**

(Total for Question 1 is 4 marks)

2 Magnetic tape is still widely used by large organisations today.

(a) State one common use of magnetic tape in modern computer systems. **(1)**

(b) Give one advantage of using magnetic tape rather than hard disk drives for backing up data. **(1)**

(c) Give one disadvantage of using magnetic tape rather than hard disk drives for backing up data. **(1)**

(Total for Question 2 is 3 marks)

© Revision Library | revisionlibrary.co.uk

3 Explain why solid-state drives (SSDs) are generally more suitable than magnetic hard disk drives for use in laptops that are frequently carried around.

(Total for Question 3 is 3 marks)

4 A student's smartphone has 64 GB of free storage space. Each MP3 song file is on average 4 MB in size. Calculate the maximum number of songs that can be stored in the free space.

(Total for Question 4 is 3 marks)

5 A large company needs to store an archive backup of all its data. This archive is rarely accessed but must be kept safely for several years. Recommend a suitable type of secondary storage for this long-term archive backup, and justify your answer.

(Total for Question 5 is 4 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 1.3 Secondary Storage: Test Pack

Question 1

(a) Non-volatile storage that holds data and programs permanently, even when the device is switched off oe **B1**

(a) Answer: Non-volatile storage that holds data/programs permanently, even without power.

(b) First valid device, e.g. hard disk drive (HDD) **B1**

(b) Second valid device, e.g. solid-state drive (SSD)/USB flash drive/DVD/Blu-ray disc/magnetic tape (any other valid device) **B1**

(b) Answer: e.g. hard disk drive (HDD) and USB flash drive (any two valid secondary storage devices).

(c) RAM is volatile and loses its contents when the power is turned off, so secondary storage is needed to store data/programs permanently oe **B1**

(c) Answer: RAM is volatile (loses data when the power is off); secondary storage keeps data permanently.

Question 2

(a) Backing up/archiving large amounts of data held by an organisation oe **B1**

(a) Answer: Long-term backup/archiving of large volumes of organisational data.

(b) Much lower cost per gigabyte for very large capacities oe / very high capacity available **B1**

(b) Answer: Lower cost per GB for very large capacities.

(c) Data must be accessed sequentially, so it is much slower to locate/retrieve a specific file oe **B1**

(c) Answer: Slow sequential access, so retrieving a specific file takes much longer.

Question 3

SSDs have no moving mechanical parts oe **B1**

so they are less likely to be damaged/fail if dropped or knocked, unlike an HDD whose spinning platters and read/write head can be damaged by physical shock oe **B1**

SSDs typically use less power and are lighter, which suits a portable, battery-powered device oe **B1**

Answer: SSDs have no moving parts, so are far more resistant to physical shock than HDDs, whose spinning platters and head can be damaged if dropped; SSDs also use less power, extending battery life in a portable laptop.

Question 4

Converts 64 GB to MB: 64 x 1000 = 64000 MB oe **M1**

Divides total MB by song size: 64000 / 4 **M1**

16000 (songs) cao **A1**

Answer: 16000 songs

Question 5

Identifies magnetic tape as a suitable storage technology **B1**

Valid justification point 1, e.g. much lower cost per gigabyte than other media for very large capacities oe **B1**

Valid justification point 2, e.g. long shelf life, suiting long-term archival storage oe **B1**

Valid justification point 3, e.g. slower sequential access speed is an acceptable trade-off since the data is rarely accessed oe **B1**

Answer: Magnetic tape: very low cost per GB for huge capacities and a long shelf life make it ideal for rarely-accessed, long-term archives, and its slow sequential access is not a problem since the data is not needed quickly.

© Revision Library | revisionlibrary.co.uk