



Information and Communication Technology

-0417-

Chapter Three: Storage Devices and Media

0417 Past Paper Questions with Mark Scheme

2021-2024



1 Tick (✓) whether the following storage devices are examples of optical, magnetic or solid state storage.

	optical (✓)	magnetic (✓)	solid state (✓)
Flash drive			
Hard disk drive			
Blu-ray disc drive			
SSD			

[4]

2 Tick (✓) the most appropriate storage medium that should be used in each scenario.

Scenario	Magnetic tape (✓)	RAM (✓)	ROM (✓)
To store the current instructions in use by a computer			
To back up data from a school network server			
To store data temporarily			
To store the start-up instructions of a computer			

[4]

3 Tick (✓) whether the following statements refer to Backing storage, RAM or ROM.

	Backing storage (✓)	RAM (✓)	ROM (✓)
This is temporary storage used for the application being executed.			
This is volatile memory.			
An example of this storage is an SSD.			
This stores the start-up instructions for the computer.			

4 Magnetic tapes are used in organisations for backing up data.

[4]

Describe the advantages and disadvantages of using magnetic tapes rather than flash memory for backing up data.

[6]

5 Modern laptop computers use Solid State Drives (SSD) rather than Hard Disk Drives (HDD).

State **three** advantages of using SSDs rather than HDDs in a laptop computer.

1

2

3

[3]

6 Many laptop computers use the cloud to store data. A technician has produced a report on his laptop computer but has stored the report on a memory stick rather than storing it on the cloud.

Describe **two** advantages of using a memory stick rather than the cloud to store data.

1

2

[2]

7 Laptop computers use Solid State Drives (SSD) rather than Hard Disc Drives (HDD).

Describe **two** disadvantages of using an SSD rather than an HDD in a laptop computer.

1

2

[2]

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8 Circle **two** storage devices.

Bridge	Digital camera	DVD RAM Drive	Linker
Memory stick	Mouse	Printer	Spreadsheet

[2]

9 Many students prefer to store data on external storage devices like pen drives or portable hard disk drives.

Describe **four** advantages of using a pen drive rather than a portable hard disk drive.

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4

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[4]

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10 A student needs to purchase a new computer for use on his university course.

The laptop computers available to him are one that contains a solid-state drive (SSD) or one that only stores data on the internet, using the cloud.

Evaluate these two types of laptop computer.

[6]

11 Circle **two** items which are solid-state storage media.

Actuator

Blu-ray disc

Cloud

DVD

Flash memory

Hard disk

Printer

SD card

[2]

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12 State **three** advantages of using solid state storage devices rather than magnetic storage devices.

1 _____

2 _____

3 _____

[3]

13 Circle **two** solid-state storage devices.

Actuator

Cloud

CD-ROM drive

DVD drive

HDD

Pen drive

Sensor

SSD

[2]

14 A student uses a laptop computer for his studies. The laptop computer uses both backing storage and internal memory.

(a) Describe the differences between backing storage and internal memory.

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[4]

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(b) (i) State **one** example of internal memory.

..... [1]

(ii) Cloud storage is an example of backing storage.

State **one** other example of backing storage.

..... [1]

(c) The student is considering using cloud storage.

Evaluate this type of storage.

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[6]

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15 Many people use portable solid-state drives (SSD) rather than portable hard disk drives (HDD).

Compare SSDs and HDDs. Your answer should include both similarities and differences.

[6]

Mark Scheme

Question	Answer				Marks
1		optical	magnetic	solid state	4
	Flash drive			✓	
	Hard disk drive		✓		
	Blu-ray disc drive	✓			
	SSD			✓	

Question	Answer				Marks
2	Scenario	Magnetic tape	RAM	ROM	4
	To store the current instructions in use by a computer		✓		
	To back up data from a school network server	✓			
	To store data temporarily		✓		
	To store the start-up instructions of a computer			✓	

Question	Answer				Marks
3		Backing storage	RAM	ROM	4
	This is temporary storage used for the application being executed.		✓		
	This is volatile memory.		✓		
	An example of this storage is an SSD.	✓			
	This stores the startup instructions for the computer.			✓	

Question	Answer	Marks
4	<p>Six from: Advantages Less expensive per GB/gigabyte of memory Not as easily lost, as larger in size</p> <p>Disadvantages Data access time is slower Data transfer rate is slower Affected by magnetic fields They have moving parts therefore less robust Read and write is more noisy Less compact than flash memory Harder to transfer to other devices Requires a special reader</p> <p>To gain full marks there needs to be advantages and disadvantages</p>	6

Question	Answer	Marks
5	<p>Three from: The startup of the laptop is faster SSDs consume less power than HDD so conserves battery power Reduces the weight of the laptop as SSD is lighter Makes the laptop more compact</p>	3

Question	Answer	Marks
6	<p>Two from: Does not need access to the internet Fewer issues storing the data as the connection could drop during storage if the cloud is used More control over the stored data</p>	2

Question	Answer	Marks
7	<p>They tend to have a more limited number of read and writes More expensive <u>per</u> Gb than HDD</p>	2

Question	Answer	Marks
8	<p>DVD RAM Drive Memory stick</p>	2

Question	Answer	Marks
9	<p>Four from:</p> <p>Is more robust as no moving parts Can be more easily carried Use less power Have faster data access Have faster data transfer times</p>	4

Question	Answer	Marks
10	<p>Six from:</p> <p>Laptop with SSD</p> <ul style="list-style-type: none"> • Data can only be accessed on the laptop if laptop breaks there is no access • The user retains control over the data stored • Greater security as data is always with you • After the initial cost of the laptop there is nothing else to pay for storage <p>Cloud storage laptop</p> <ul style="list-style-type: none"> • Requires an internet connection to store/read/access data the internet connection should be stable • More storage available • Can be more expensive as storage needs to be bought • The data is available on other devices if the laptop breaks • Automatic backup of data so less chance of losing data • Can be issues if the internet drops during storing of data <p>To gain full marks the evaluation must have both Laptop with SSD and Cloud storage laptop</p>	6

Question	Answer	Marks
11	SD Card Flash memory	2

Question	Answer	Marks
12	<p>Three from:</p> <p>More robust Faster data access times Faster data transfer times Faster read and write speeds Less likely to be affected by magnetic fields</p>	3

Question	Answer	Marks
13	Pen drive SSD	2

Question	Answer	Marks
14a	<p>Backing Storage Max three from:</p> <p>Backing Storage is non-volatile only This is permanent storage Storage devices have slower access rates than internal memory Larger storage capacity than internal memory Secondary storage</p> <p><i>Internal Memory</i> Max three from:</p> <p>Data can be either volatile or non-volatile Can be permanent or temporary storage <u>Directly</u> accessed by the CPU Primary storage</p>	4
14b(i)	<p>One from:</p> <p>Read Only Memory / ROM Random Access Memory / RAM</p>	1
14b(ii)	<p>One from:</p> <p>Magnetic storage Optical storage Solid state storage</p> <p>Allow a correct example as an alternative to each</p>	1
14c	<p>Positives Max five from:</p> <p>Data stored on the cloud can be shared by many people easier than other backing storage Easier to maintain files as there are no physical devices to manage Storage space is dynamic Easily expandable Users only pay for what is used Automatic backup of data to ensure data is not lost Easier to find items of data as they are all in one place Data can be synced across multiple devices / servers when changes are made Data can be accessed from multiple devices Data can be accessed from anywhere</p> <p>Negatives Max five from:</p> <p>Data control is lost Data security can be an issue as many copies are stored Requires a stable internet connection Subscription needs to be maintained otherwise the cloud account could be lost If the cloud provider closes down you may lose data</p>	6

Question	Answer	Marks
15	<p><i>Similarities</i> Max five from: Both store data Both have fast access Both have fixed storage capacity Both store files permanently Both can be plugged into any computer system Both are secondary storage Both allow data to be written to <u>and</u> read from</p> <p><i>Differences</i> Max five from: SSD uses semi-conductor technology HDD uses magnetic technology HDD can be affected by strong magnetic fields SSD are more robust as no moving parts SSD produces less heat SSD uses less processing power SSD use less electrical power</p>	6