0417 Past Papers

ICT

Chapter 3

Storage devices and media

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(b) The program collects a large amount of data and this could be stored using either a fixed solid-state drive (SSD) or cloud storage.

The developer is planning to use cloud storage.

(i) Describe **four** advantages to the school of using cloud storage rather than using the SSD.

1 .....

7(b)(i)	**Four** from: The cloud has greater storage capacity The data could be sent directly to/from the cloud from any computer/device Storage capacity can be increased without adding additional physical devices Many people can share the data The school would only pay for the storage used There is an automatic backup of data

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[4]

(ii) Describe **three** disadvantages to the school of using cloud storage rather than using the SSD.

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7(b)(ii)	**Three** from: More security issues as multiple copies of the data are stored The school loses control over the storage of the data Cloud storage has an ongoing cost Users must have a reliable internet connection to store data Users must have an internet connection to access data

13 A media student is creating a movie, in school, for a project. He needs to take the movie home to edit it.

The student intends to use a CFast solid-state memory card to transport the movie files.

The student is unable to save the work on the memory card.

Give **two** error messages that may appear when attempting to save the work.

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[2]

13	**Two** from: Medium is full Corrupt card Write error Card error Card not initialised Virus found on the card Device not recognised

(b) 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]

10(b)

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

4

3 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]

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			✓

1 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]

	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 startup instructions for the computer.			✓

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

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

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14	**Six** from: ***Advantages*** Less expensive per GB/gigabyte of memory Not as easily lost, as larger in size ***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 that flash memory Harder to transfer to other devices Requires a special reader **To gain full marks there needs to be advantages and disadvantages**

13 Modern laptop computers tend to use external solid state storage rather than external optical storage.

Compare and contrast the use of solid state storage with the use of optical storage to store data.

Max **seven** from:

Differences

Optical discs such as CDs, DVDs and Blu-ray discs …
…. are read from and written to using a laser beam

Solid state storage such as pen drives and SSDs …
…. are read from and written to using semiconductor chips

Optical discs have slower access times
Optical discs have slower transfer rates
Optical discs can be more easily scratched
Solid state do not have to get up to speed before they work
Solid state has lower power consumption

Max **seven** from:

Comparisons

Both store videos, music, files, images, data
Both are portable
Both use direct access
Both can be easily lost/stolen
Both backing storage

[8]

1 Data can be stored on **Magnetic**, **Optical** or **Solid state** media.
Tick the most appropriate type of medium for each of the examples.

	Magnetic (✓)	**Optical (✓)**	**Solid state (✓)**
Blu-ray disc			
Hard disk			
Pen drive			
Flash memory card			

[4]

Question	**Answer**				**Marks**
1		**Magnetic**	**Optical**	**Solid state**	**4**
	Blu-ray disc		✓		
	Hard disk	✓			
	Pen drive			✓	
	Flash memory card			✓	

8 Compare and contrast the use of magnetic tapes with removable magnetic disks to make network server backups.

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8	Any **five** from: – both can be stored well away from the server… – ….in the event of fire they will be secure – tapes are cheaper per bit – tapes are more compact than a portable hard disk for the same memory – it is quicker to access lost work using disks – disks would make it quicker to restore the system – tapes are less prone to data loss and mechanical failure – both can store very large amounts of data – both have very fast data transfer rates [5]

4 CD, DVD and Blu-ray are types of optical storage media.

Tick the most appropriate optical storage medium for each of the statements.

	CD (✓)	DVD (✓)	Blu-ray (✓)
Stores lower quality audio files			
Has the highest storage capacity			
The RAM version of this medium is used to record and play recorded images at the same time			
Stores high definition movies			

[4]

Question	Answer	Marks
4		4

	CD (✓)	DVD (✓)	Blu-ray (✓)
Stores lower quality audio files	✓		
Has the highest storage capacity			✓
The RAM version of this media is used to record and play recorded images at the same time		✓	
Stores high definition movies			✓

2 Tick whether the following are examples of **Magnetic tape**, **Blu-ray** or **DVD RAM**.

	Magnetic tape (✓)	Blu-ray (✓)	DVD RAM (✓)
Does not require a laser to read the data.			
Uses serial access only.			
Used to store and play HD movies.			
Can store and read data at the same time.			

[4]

Question	Answer				Marks
2		Magnetic tape	Blu-ray	DVD RAM	4
	Does not require a laser to read the data.	✓			
	Uses serial access only.	✓			
	Used to store and play HD movies.		✓		
	Can store and read data at the same time.			✓	

10 Magnetic tapes are traditionally used for backing up data on large computer systems. Liu works from home and is considering either backing up her data on to magnetic tape or a pen drive.

Give **three** reasons why she may prefer to use a pen drive.

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[3]

Question	Answer	Marks
10	**Three** from: Pen drives work on most computer systems magnetic tape drives may not Magnetic tape drives are more expensive to buy Pen drives are more robust Finding/restoring data from a pen drive is easier Pen drives are less susceptible to magnetic fields Easier to carry around/more portable	3

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6 A student has completed some work at school and wishes to take it home. He could use a pen drive or a CD R disc to transport the files.

(a) Give **two** error messages that could appear to stop him saving his work.

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(b) Compare and contrast the use of a pen drive rather than a CD R.

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Question	Answer	Marks
6(a)	Any **two** from: – Scan the pen drive for errors – Medium is full – Virus found on the file – Bad sector/unable to save – Device not recognised – Read error	2
6(b)	**Differences** Max **three** from: – Not every computer has a CD drive, but most PCs have a USB port – A CDR can slip between papers and can be easily lost – Pen drive are small and can easily slip out of a pocket – Pen drive stores more data – Pen drive is more robust – Pen drive can be overwritten/edited/data erased – Pen drive is solid state whereas CDR is optical **Similarities** – Pen drive and CDR are storage devices – CDR and pen drive are portable	4

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6 Tick the most appropriate storage medium for each of the following uses.

	Fixed Hard Disk (✓)	Blu-ray (✓)	Magnetic Tape (✓)	Memory Card (✓)
Storing a database of books in a school library				
Storing photographs in a digital camera				
Companies distributing HD movies				
Storing the backup of a file server				

[4]

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	Fixed Hard Disk (✓)	Blu-ray (✓)	Magnetic Tape (✓)	Memory card (✓)
Storing a database of books in a school library	✓			
Storing photographs in a digital camera				✓
Companies distributing HD movies		✓		
Storing the back up of a file server			✓	

[4]

2 Tick the **most** appropriate method of storing data for each of the following uses.

Use	Memory card ✓	Magnetic Tape ✓	Blu-ray Disc ✓
Storing photos in a camera			
Storing file server backups			
Storing high definition movies			
Storing large numbers of payroll records			

[4]

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Storing photos in a camera	✓			[1]
Storing file server backups		✓		[1]
Storing high definition movies			✓	[1]
Storing large numbers of payroll records		✓		[1]

3 Complete the table by identifying the **most** appropriate storage method for each type of application.

Application	Storage method
Theatre booking systems	
Storing photographs in a camera for printing at a later time	
The most portable device used to transport data from computer to computer	
A disc used to sell music albums without video	

[4]

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Application	Storage method	
Theatre booking systems	Hard disc	[1]
Storing photographs in a camera for printing at a later time	Flash memory card	[1]
The most portable device used to transport data from computer to computer	Pen drive	[1]
A disc used to sell music albums without video	CD ROM	[1]

17 Describe the characteristics and uses of different types of DVD.

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17 **Eight** from:

- DVDs are used to hold very large files several Gb
- DVDs used to store films/movies
- DVD RWs useful for keeping generations of files
- DVDs discs can be used to store computer data
- DVD ROM used for applications which require the prevention of deletion of data
- DVD ROMs used by software companies for distributing software programs and data
- DVD ROMs used by film/movie distributors
- DVD R used in applications which require a single 'burning' of data
- DVD RW used for applications which require the updating of information/record over old data
- DVDs have between five and ten times the capacity of CDs
- DVD RAM has the same properties as DVD RW but with quicker access
- DVD RAM data can be overwritten more easily
- DVDs are portable/can be transported from one computer to another
- DVD ROMs cannot have data changed **[8]**

11 Compare and contrast the use of optical discs and the use of fixed magnetic disks to store data.

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11 **Six** from:

Optical discs such as CDs DVDs and Blu-ray discs…
…are read from and written to using a laser beam
Magnetic disks are read from and written to using read/write heads
Optical discs are more portable
Magnetic disks are more likely to spike
Optical discs are cheaper to buy
Magnetic disks store more data
Optical discs have slower access times
Optical discs have slower transfer rates
Optical discs can be more easily lost/stolen
Optical discs can be more easily scratched
Both store videos, music
Both use direct access **[6]**

7 Use the **most appropriate** phrase from the list below to complete each sentence.

store data in real time applications

store high definition films

store backups of file servers

store music for sale

store photographs in a digital camera

(i) A CD ROM is used to .....

(ii) A blu-ray disc is used to .....

(iii) A magnetic tape is used to .....

(iv) A flash memory card is used to .....

[4]

7	**(i)** A CD ROM is used to	store music for sale	
	(ii) A blu-ray disc is used to	store high definition films	
	(iii) A magnetic tape is used to	store backups of file servers	
	(iv) A flash memory card is used to	store photographs in a digital camera	[4]

5 Tick **True** or **False** for the following statements.

	True	False
A magnetic tape has faster data access than a DVD ROM.		
A CD is used to store a two hour high definition movie.		
A magnetic disc is used for online processing.		
Pen drives are used to copy data from one computer to another.		

[4]

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	True	False	
A magnetic tape has faster data access than a DVD ROM.		✓	**[1]**
A CD is used to store a two hour high definition movie.		✓	**[1]**
A magnetic disc is used for online processing.	✓		**[1]**
Pen drives are used to copy data from one computer to another.	✓		**[1]**