1.3.5
Memory

1.3.5.1 Memory, storage devices and media

May/June 2017

1 Four storage devices are described in the table below.

Tick (✓) to show the storage device being described.

In columns 2, 3, 4, 5 and 6, 1 is the most appropriate category of storage.

Description of storage device	Hard disk drive	Solid state drive	Optical disk drive	Magnetic tape	Flash memory
Category of storage device					
Uses magnetic tape, a magnetic coating and a read/write head to store data. Data can be read and written to and from the storage device.				✓	
Uses a read/write head to read data from the storage device. It has no moving parts.		✓			
Uses a read/write head to read data from the storage device. It has moving parts.	✓				
Uses a read only laser to read data from the storage device. It has moving parts.			✓		
Uses a read only laser to read data from the storage device. It has no moving parts.					✓

[4]

1.3.5.1 Memory, storage devices and media

June 2018

2 A remote controlled model car contains 1MB, 8MB and a solid state drive. The car receives radio signals from its remote control. It can also receive data signals via a Bluetooth connection. The manufacturer uses the Bluetooth connection to update the car's software. The car's software includes instructions for the car's sequence of movements from an interface underneath the car.

(a) State the purpose of each of the three types of memory supplied with the car.

RAM

ROM

Solid state drive

[3]

(b) Explain why the model car uses a solid state drive rather than another type of secondary storage.

[2]

Jan/Feb 2019

3 A security system records video footage. Only motion of video requires 200 MB of storage. The recording system can store several days/of video footage.

(a) Name and describe a suitable storage device for the recording system.

[2]

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June 2019

(b) (i) Two examples of optical storage media are:

• CD-R/RW

• DVD-R/RW

• Blu-ray disc

Tick (✓) the appropriate boxes in the table to indicate which of the features apply to each format of optical storage.

	Single layer	Dual layer	Non-rewritable (write once)	Rewritable (write many times)
CD-R/RW	✓		✓	✓
DVD-R/RW	✓	✓	✓	✓
Blu-ray disc	✓	✓	✓	✓

[4]

(b) (ii) State which format, CD-R/RW or DVD-R/RW, is better suited to some companies.

[1]

(b) (iii) Explain why Blu-ray disc is suitable for storing large amounts of data.

[2]

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June 2019

(c) There are two descriptions in the table below.

Complete the table below by putting the correct storage device in media in the box next to each description.

Description	Storage device or media
Very reliable memory that can only be read from and not written to.	ROM
Optical storage media that allows very high storage capacity by using multiple layers of data.	Blu-ray
Portable memory that stores data, programs and the parts of the operating system that are needed at a time.	RAM
Optical storage media that uses a single spiral track and is used for mass distribution of pre-recorded data and media.	DVD-ROM
Optical that stores data by controlling the movement of electrons within a semiconductor material.	SSD
Optical storage media that uses concentric tracks whereas DVD uses a single spiral to store data and media.	DVD-RAM

[6]

1.3.5.1 Memory, storage devices and media

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4 **Stage** computers terms and **Light** descriptions are shown below.

Draw lines to connect each computer term to the correct description.

Computer term	Description
Arithmetic and logic unit (ALU)	Does can be read not not allowed
Control unit	Creates an operation such as addition and multiplication
	Stores instructions known and RAM
Random access memory (RAM)	Fetches each instruction in turn
	Carries out operations such as read, add, store
Read only memory (ROM)	Stores part of the operating system currently in use
	Stores data currently in use
	Manages execution of exact instructions

[4]

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5 Tick (✓) the appropriate boxes in the table to indicate which of the features apply to each format of optical storage.

	Single layer	Dual layer	Non-rewritable (write once)	Rewritable (write many times)
CD-R/RW	✓		✓	✓
DVD-R/RW	✓	✓	✓	✓
Blu-ray disc	✓	✓	✓	✓

[4]

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6 Complete the paragraph by choosing the correct terms from the list.

• Cache

• On-line

• ROM

• RAM

• Hybrid

• Off-line

• Secondary

• Primary

• Backing store

Computer systems use a number of different types of memory. Primary memory is not directly accessed by the CPU, but it stores data and instructions that are accessed by applications. The contents of this memory are lost when the computer is switched off. This is known as volatile memory. Secondary memory, also known as backing store, is used to store programs and data. It is not directly accessed by the CPU. It offers the processor an off-line, non-volatile, non-volatile, non-volatile