

- 1 There are **six** output devices and **six** descriptions shown.

Draw a line to connect each output device to the most appropriate description.

Device	Description
Laser Printer	Uses a high-intensity beam of light shone through three layers of changing pixels
LCD Projector	Uses millions of micro mirrors to reflect light through a lens
Digital Light Projector (DLP)	Uses plastic, resin or powdered metal to generate a physical output
Inkjet Printer	Uses a static electric charge on a rotating drum to generate a physical output
3D Printer	Uses liquid ink to generate a physical output
2D Cutter	Uses a high-power laser to generate a physical output

[5]

- 4 The MAC address of a device is represented using hexadecimal.

A section of a MAC address is shown. Each pair of hexadecimal digits is stored using 8-bit binary.

- (a) Complete the table to show the 8-bit binary equivalents for the section of MAC address. The first number has already been converted.

6A	FF	08	93
01101010			

[3]

- (b) Explain why data is stored as binary in computers.

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.....[2]

- 5 Data can be transferred using half-duplex serial transmission.

- (a) Describe serial transmission.

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.....[2]

- (b) Give **one** application of serial data transmission.

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.....[1]

- (c) Describe half-duplex data transmission.

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.....[2]

6 Sarah stores data electronically.

Describe **three** methods that she could use to avoid loss of stored data.

Method 1

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Method 2

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Method 3

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[6]

7 David is writing a program using a high-level language. The program will be published and sold for profit.

(a) David uses an interpreter when creating the computer program.

State **three** features of an interpreter.

Feature 1

Feature 2

Feature 3

[3]

(b) David compiles the program when he has completed it.

Explain **two** benefits of compiling the program.

Benefit 1

Benefit 2

[4]

8 Alice enters a URL into a web browser to access a webpage.

(a) State what URL represents.

U R L [1]

(b) Explain how the web browser uses the URL to access the webpage.

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..... [4]

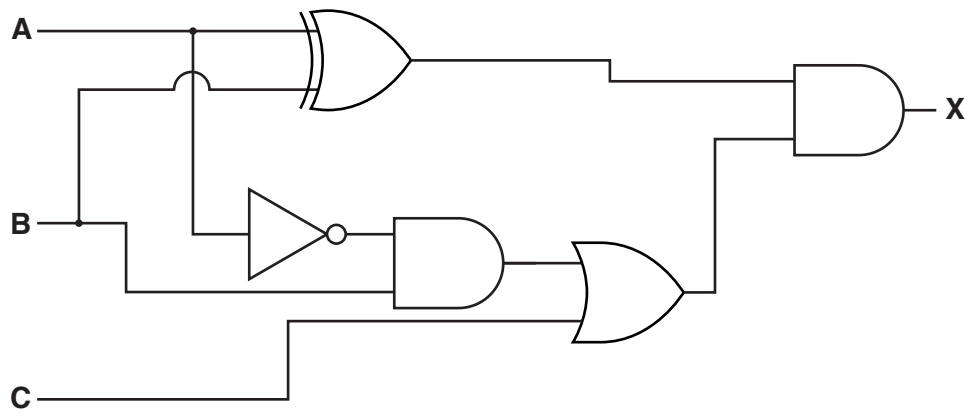
9 Describe **two** differences between Read Only Memory (ROM) and Random Access Memory (RAM).

Difference 1
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Difference 2
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[4]

10 A logic circuit is shown:



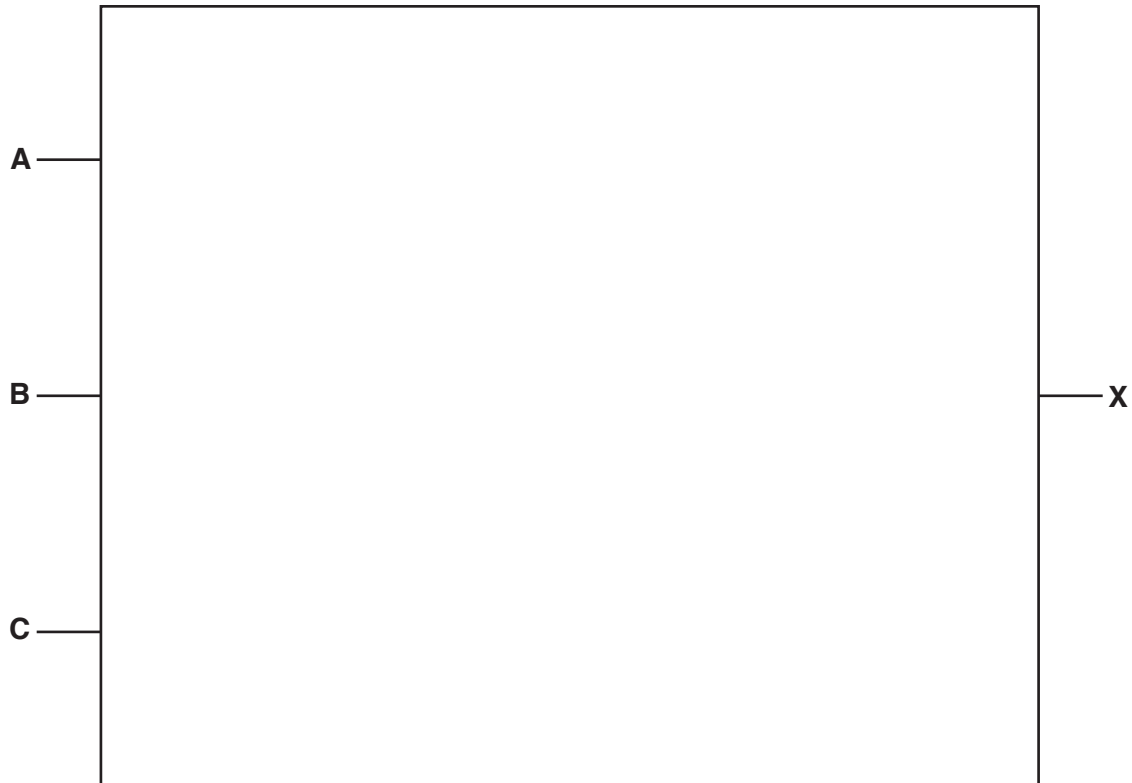
(a) Complete the truth table for the given logic circuit.

A	B	C	Working space	X
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

[4]

(b) Draw a logic circuit corresponding to the logic statement:

$$X = 1 \text{ if } ((A \text{ is } 1 \text{ AND } B \text{ is } 1) \text{ AND } (A \text{ is } 1 \text{ OR } C \text{ is NOT } 1)) \text{ OR } (B \text{ is } 1 \text{ AND } C \text{ is NOT } 1)$$



[6]

11 The fetch-execute cycle make use of registers.

(a) Describe the role of the Program Counter (PC).

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.....[2]

(b) Describe the role of the Memory Data Register (MDR).

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.....[2]

12 Explain the difference between a Musical Instrument Digital Interface (MIDI) file and a MP3 file.

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.....[4]

13 State which types of storage device or media would be most suitable for these scenarios.

For each device or media, justify your choice.

(a) Creating a backup of 150 GB of data.

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Justification
.....[2]

(b) Storing applications on a tablet device.

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Justification
.....[2]

(c) Storing a 1200 MB high-definition promotional movie about a new car. The movie is to be given to people who are interested in buying a new car.

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Justification
.....[2]

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