

QUESTION 1.



12 The processes in a chemical factory are monitored by sensors connected to a microprocessor.

(a) Identify **two** different sensors used in this application. Give an example of how each could be used in the chemical factory.

Sensor 1

Use

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Sensor 2

Use

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[4]

(b) Describe how the sensors and a microprocessor are used to monitor a process.

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[5]

QUESTION 2.

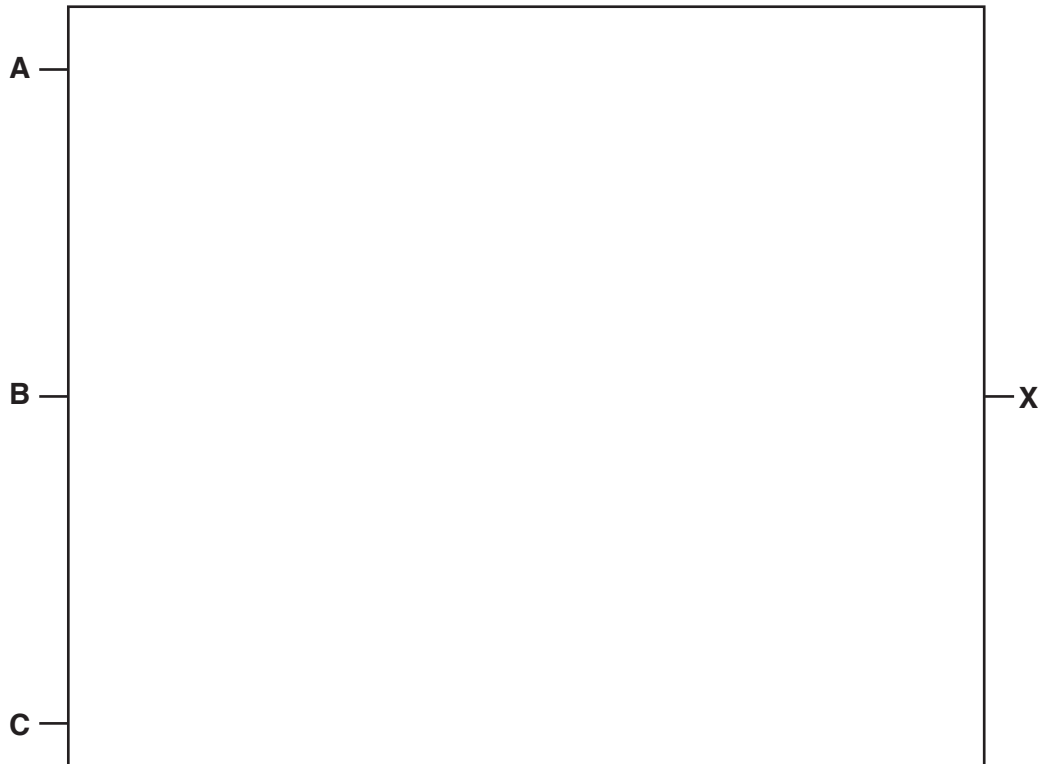
11



10 For this logic statement:

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

(a) Draw the logic circuit.



[4]

(b) Complete the truth table for the given logic statement.

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]

QUESTION 3.

11



10 Six statements about assembly language are shown.

Tick (✓) whether the statement is **true** or **false**.

Statement	true (✓)	false (✓)
Assembly language uses mnemonic codes.		
Assembly language programs do not need a translator to be executed.		
Assembly language is a low-level programming language.		
Assembly language is specific to the computer hardware.		
Assembly language is machine code.		
Assembly language is often used to create drivers for hardware.		

[6]

QUESTION 6.



12 Explain the difference between a Musical Instrument Digital Interface (MIDI) file and an audio 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

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[2]

(b) Storing applications on a tablet device.

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Justification

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[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

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[2]

QUESTION 7.

10



11 Robert has a mobile device that uses RAM, ROM and an SSD.

(a) State what the RAM, ROM and SSD are used for.

RAM

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ROM

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SSD

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[3]

(b) Give **two** reasons why an SSD, rather than a HDD, is used in the mobile device.

Reason 1

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Reason 2

.....

[2]

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QUESTION 8.



(d) For the fourth question, he writes the answer:

“This is when a person copies another person’s computer program and tries to claim it as his own.”

State what Jesse is describing.

..... [1]

(e) For the fifth question, he writes the answer:

“This is the legal protection that a person can obtain, to provide protection against his work being stolen.”

State what Jesse is describing.

..... [1]

7 The Von Neumann model for a computer system has several components that are used in the fetch-execute cycle.

(a) One component is main memory.

(i) Describe what is meant by main memory and how it is used in the Von Neumann model for a computer system.

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..... [3]

(ii) State **two** other components in the Von Neumann model for a computer system.

1
2 [2]

12

(b) Computer systems often use interrupts.

Five statements are given about interrupts.

Tick (✓) to show if each statement is **True** or **False**.

Statement	True (✓)	False (✓)
Interrupts can be hardware based or software based		
Interrupts are handled by the operating system		
Interrupts allow a computer to multitask		
Interrupts work out which program to give priority to		
Interrupts are vital to a computer and it cannot function without them		

