



Introduction to Computer Science

Sample

Examination Paper

Answer ALL questions.

Clearly cross out surplus answers.

Time: 2 hours

The maximum mark for this paper is 50.

Any reference material brought into the examination room must be handed to the invigilator before the start of the examination.

Answer ALL questions

Marks

Question 1

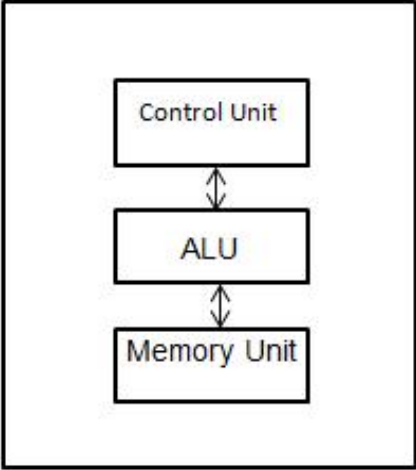
- a)** Computers are available in different sizes and are used for many different purposes. However, they share common characteristics.
- i) Identify THREE (3) main functions of a computer system. **3**
 - ii) Identify TWO (2) essential components of a computer system. **2**
- b)** The amount of data that is processed and stored by computers is increasing.
- i) Identify TWO (2) types of computer that can be used to store mass volumes of data. **2**
 - ii) Describe THREE (3) requirements of a computer system that stores and processes large amounts of data. **3**

Total 10 Marks

Questions continue on next page

Question 2

a) The most important hardware component of a computer system is the central processing unit (CPU). The following diagram shows the main components of a CPU.



- i) Explain the purpose of the arithmetic and logic unit (ALU). 3
- ii) Describe the function of a bus in relation to a CPU. 2

b) An essential component of a computer is a motherboard.

- i) Identify THREE (3) main components of a motherboard. 3
- ii) Describe the function of a motherboard. 2

Total 10 Marks

Questions continue on next page

Question 3

- a) Briefly describe one feature of a closed source operating system.
- b) For each of the following statements, state whether it is an example of a *multithreading operating system*, a *multitasking operating system* or a *real-time operating system*.
- i) An operating system that allows more than one program to run at the same time. **1**
 - ii) An operating system that responds to input instantly. **1**
 - iii) An operating system that enables different parts of a single program to run at the same time. **1**
- c) A number of criteria should be considered when obtaining application software, for example, whether a software licence is required or whether to use integrated software.
- i) Explain THREE (3) purposes of a software licence. **3**
 - ii) Describe THREE (3) features of integrated software.

Total 10 Marks**Questions continue on next page**

Question 4

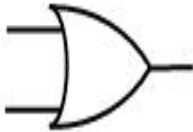
- a) i) In the table below are examples of THREE (3) image file formats. Identify if each one uses *lossy* or *lossless* compression. 3

Image file format	Type of compression used
PNG	
GIF	
JPEG	

- ii) Describe TWO (2) features of an image if it is compressed using lossy compression. 2

- b) Logic gates enable a digital system to make decisions based on the inputs to the logic gate.

- i) Identify which logic gate the following symbol represents. 1



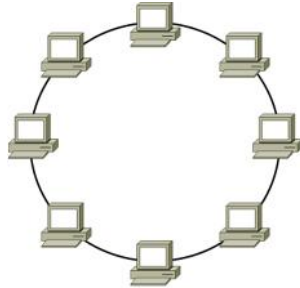
- ii) Identify FOUR (4) functions of a logic gate. 4

Total 10 Marks

Questions continue on next page

Question 5

- a) A departmental manager wants to upgrade the computer network that is currently used in her department. She has chosen the following network topology to be used:



- i) Identify the network topology that the departmental manager has chosen. **1**
 - ii) Outline FOUR (4) advantages of choosing this topology. **4**
- b) It is important that respect is shown to other users when using computers. It is also essential that organisations who store data on people do so with due regard to the law.
- i) Explain briefly what is meant by *netiquette*. **2**
 - ii) Describe THREE (3) aims of the UK Data Protection Act 1998 **3**

Total 10 Marks

End of paper