

Instructions: answer any five questions (Two hours)

1. (a) Outline THREE advantages and THREE disadvantages of email communication compared to the conventional postal system of sending textual **information** (6 marks)
- (b) write the following file formats in full and state two characteristics of each
- (i) GIF (3 marks)
 - (ii) jpeg (3 marks)
- (c) state the difference between the following pairs of terms. Give an example in each case
- (i) system software and Application software (4 marks)
 - (ii) Primary storage and secondary storage (4 marks)

2. (a) (i) what is an operating system? (2 marks)
- (ii) Give two examples of operating system. (2 marks)
- (iii) outline FOUR functions of an operating system (4 marks)
- (b) (i) what do you understand by the term *computer generation*? (2 marks)
- (ii) Complete the table below on computer generations (2 marks)

Main Technology	Generation
Integrated Circuit	
Vacuum Tube	
Very large-scale integration (VLSI)	
Transistors	

- (c) Briefly explain the difference between an online system and a real-time system (4 marks)
- (d) Give two difference between high level languages and low-level languages (4 marks)

3. (a) State the meaning of the following terms:
- (i) Human-computer interface (2 marks)
 - (ii) Command line interface (2 marks)
 - (iii) Graphical user interface (2 marks)

(b) Below is an algorithm with each line of instruction numbered on the left:

1. Begin
2. Give the price of Item, A
3. Give the number of items bought, S
4. If $S < 10$ then
5. Total = $A*S-100$
6. Else
7. Total = $A*S-300$
8. Print Total
9. End

- (i) state briefly what the algorithm does (3 marks)
- (ii) state the two types of control structures uses in the algorithm (2 marks)
- . (iii) Determine the output if the values of A = 300 and S = 3 (3 marks)
- . (iv) Represent the algorithm above using a flow chart (6 marks)

4. (a) Briefly explain the difference between data validation and data verification (2 marks)
- (b) A validation rule states that only alphabetic and/or numeric characters are acceptable and that an entry must be least five characters in length. Which two of the following data would be REJECTED by the system?

Good is123z giving w-6856 (2 marks)

Give reasons for your answer. (2 marks)

- (c) The paragraph below contains five (5) abbreviations

*"Most ISP in Cameroon provide internet connectivity to major banks. Internet connectivity requires the **TCP/IP** protocol, while Web use requires the **HTTP** protocol. Interesting how some banks prefers **DSL**, some go for **ADSL** and some others for broadband connections."*

- (i) Write the 5 highlighted abbreviations in full (5 marks)
 - (ii) What are the roles of the TCP/IP and HTTP protocols? (2 marks)
- (d) (i) sketch each of the following logic gates, clearly labelling inputs and outputs (3 marks)

OR AND NOT

- (ii) Complete the following truth table

a	b	\bar{a}	\bar{a} OR b
1	0		
0	1		
1	0		
0	1		

5. (a) briefly explain the following as used in computer networking
- (i) Bandwidth (2 marks)
 - (ii) Optic fibre (2 marks)

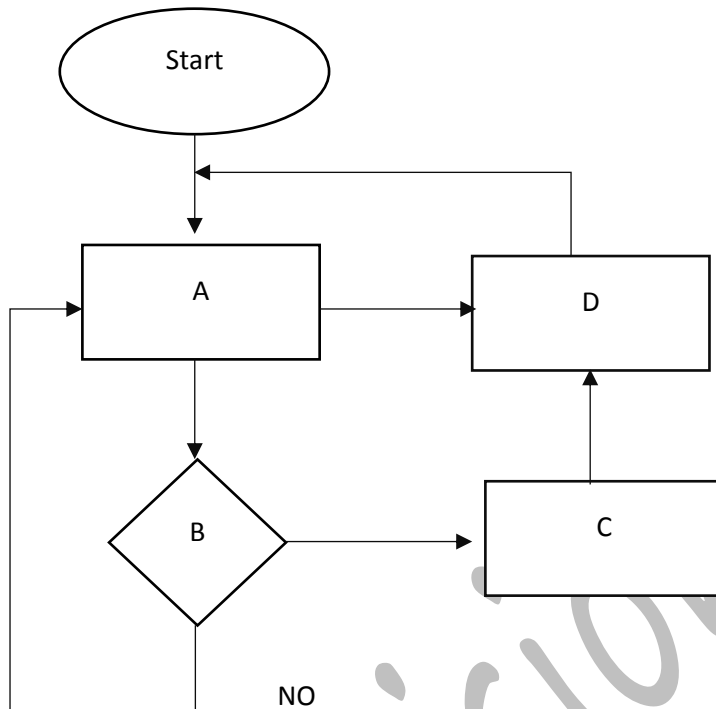
- (b) Briefly describe the following as used in information systems.

(i) Management Information System (2 marks)

(ii) Expert System (2 marks)

- (c) A control system is designs to regulate the temperature of a piece of equipment by detecting the color of a light bulb and sprinkling water for 20 seconds if the color is red. Study the flow charts given below carefully and match letters in the flowchart symbols to the corresponding items in STATEMENT LIST.

(you are not expected to draw the diagram)



STATEMENT LIST

1. Is light red?
2. Check color of light Bulb
3. Sprinkle water for 20 Seconds
4. Reset color of light bulb and wait for 10 seconds

(d) (i) What is a project? **(2 marks)**

(ii) Explain the roles of PERT and Gantt charts in project management **(4 marks)**

6. (a) With the aid of a suitable example in each case, state the meaning of
 (i) Input device **(2 marks)**

(ii) Output device **(2 marks)**

(iii) Input/output device **(2 marks)**

(b) (i) write in full the acronyms RAM and ROM **(2 marks)**

(ii) Explain briefly the term 'volatile' in relation to RAM and ROM **(2 marks)**

(c) Explain the difference between a computer's RAM and ROM in terms of:

(i) the role of the data and instructions held in them **(2 marks)**

(ii) the ability to modify the data and instructions held in the **(2 marks)**

(d) (i) A common mistake is to assume that 1 kilobyte (KB) is equal to 1,000 bytes, instead of 1,024 bytes. Explain why 1KB is equal to 1,024 bytes and not 1,000 bytes **(2 marks)**

(iii) Determine the storage capacity of a 4GB RAM in megabytes (MB) and Kilobytes (KB) **(4 marks)**

7. (a) Draw and label a simplified block diagram that shows the components of an information system **(6 marks)**
- (b) Explain the roles of the following components of a computer system
- (i) CPU **(2 marks)**
 - (ii) primary memory **(2 marks)**
 - (iii) Secondary memory **(2 marks)**
- (c) what does the processing speed of a microprocessor measure? **(2 marks)**
- (d) Assume the Microprocessor A has a processing speed of 300 MHz and can execute 4 instructions in each cycle. Microprocessor B has a processing speed of 250 MHz and can execute 5 instructions in each cycle. Which of the two microprocessors will result in faster computations? State the reason. **(6 marks)**