GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

JUNE 2025 **ORDINARY LEVEL**

Subject Title	**COMPUTER SCIENCE**
Paper No.	**2**
Subject Code No.	**0595**

Duration: Two Hours

Answer any FIVE questions.

All questions carry 20 marks each. For your guidance, the approximate mark for each part of a question is indicated in brackets.

You are reminded of the necessity for good English and orderly presentation in your answers.

In calculations, you are advised to show all the steps in your working, giving your answer at each stage.

Calculators or Phones are NOT allowed.

1. (a) (i) State any three (03) health concerns associated with prolonged use of the computer. **(3 marks)**
   (ii) Briefly describe measures that can be taken to reduce or prevent each of the health concerns you identified in a(i) above. **(3 marks)**
   (b) Briefly explain what is meant by;
   (i) Database normalization. **(2 marks)**
   (ii) Data consistency. **(2 marks)**
   (iii) Data redundancy. **(2 marks)**
   (c) Briefly describe the following computing terminologies.
   (i) Client-server network **(2 marks)**
   (ii) Peer to peer network **(2 marks)**
   (d) (i) What is a biometric system? **(2 marks)**
   (ii) Describe any two examples of biometric data. **(2 marks)**

2. (a) Identify a suitable networking device and briefly explain its role in solving the following networking problems.
   (i) Linking a LAN to the Internet. **(2 marks)**
   (ii) Linking two large LANs of an institution. **(2 marks)**
   (iii) Controlling the communication signals in and out of an institution's extranet. **(2 marks)**
   (iv) Collecting TV signals from different sources and then channelling them to local TV sets. **(2 marks)**
   (b) In each of the following scenarios, identify the Data Transmission Mode and explain how it applies in the given context.
   (i) John watching a TV and listening to the commentaries of a football match in his house. **(2 marks)**
   (ii) John and Mary carrying out a conversation using cell phones. **(2 marks)**
   (iii) Paul and Peter sharing information through a walkie talkie. **(2 marks)**
   (c) (i) State the reason why technically, 1kilobyte (KB) = 1024 Bytes (2^{10} bytes) instead of 1KB = 1000 Bytes. **(2 marks)**
   Hence convert 10GB to,
   (ii) Megabytes (MB) **(2 marks)**
   (iii) Kilobytes (KB) **(2 marks)**

3. (a) Briefly explain why an operating system,
   (i) Should be the first software to be installed in a computer system. **(2 marks)**
   (ii) Should be able to carry out multitasking. **(2 marks)**
   (iii) Creates virtual memories. **(2 marks)**
   (b) Identify and briefly describe the role of any five (05) basic hardware components (or devices) that are involved from the moment data is input to a computer system until, when a hardcopy is generated from the system. **(10 marks)**
   (c) Convert each of the following showing clear working,
   (i) The hexadecimal (base 16) number $B2A_{16}$ to Binary (base 2). **(2 marks)**
   (ii) The octal (base 8) number 6257_8 to Hexadecimal (base 16). **(2 marks)**

4. (a) (i) What is cloud computing? **(2 marks)**
   (ii) Describe any two (02) basic requirements of cloud computing. **(4 marks)**
   (iii) Explain any two advantages of cloud computing. **(2 marks)**
   (b) Briefly describe each of the following file protection mechanism,
   (i) Backup **(2 marks)**
   (ii) Data encryption **(2 marks)**
   (iii) Archiving **(2 marks)**
   (c) A project team consisting of persons living in different localities, decides to hold an online meeting. During the meeting each person is to do a presentation of work progress.
   (i) State a technology that will enable the team members to hold a successful meeting. **(1 mark)**
   (ii) State and explain the roles of any two tools that will enable each team member to participate effectively in the meeting. **(4 marks)**
   (iii) Describe any one advantage of using the technology or means you stated in c(i) above to the participants. **(1 mark)**

Go on to the next page.

5. (a) Study the algorithm below and answer the questions that follow.

1. *Start*
2. *Get marks for test1 and test 2: Mark 1, Mark 2*
3. *If Either Mark1 is less than zero OR Mark 2 is less than zero*
4. *Display "Mark cannot be negative"*
5. *Else*
6. *Average mark = (Mark1 + Mark 2)/2*
7. *Display Mark1, Mark 2, Average mark*
8. *End*

(i) Define the term algorithm. **(2 marks)**

(ii) Copy and complete the table below by carrying out a dry run of the above algorithm. **(2 marks)**

Mark 1	Mark 2	Display
14	10	
-20	15	

(iii) Represent the above algorithm using a flowchart. **(5 marks)**

(iv) Locate by stating the line numbers of any one control structure used in the algorithm. **(2 marks)**

b) Briefly describe the roles of the following basic tags in HTML

(i) ------ **(2 marks)**

(ii) ------ **(2 marks)**

(iii) <hr> **(1 mark)**

(c) Briefly explain the difference between,

(i) An algorithm and a program code. **(2 marks)**

(ii) A compiler and an interpreter. **(2 marks)**

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6. (a) An organization intends to link all its branches within a town in a network for better communication and sharing of resources.

(i) Based on geographical scope, state the network type that can be setup by the organisation. Give a reason for your answer. **(2 marks)**

(ii) Given that the computers within each branch are linked in a star topology. Sketch and label the layout of devices in the network with four computers. **(4 marks)**

(iii) Give two other network topologies that can be used by the organization. Justify your answer **(4 marks)**

(b) Figure 1 shows a four-level pyramid model of types of information system.

(i) Copy and complete the pyramid using the following categories of systems placed in their correct positions: **(4 marks)**

Executive Information System (EIS), Decision Support System (DSS), and Management Information System (MIS)

[You may use the abbreviations as indicated]

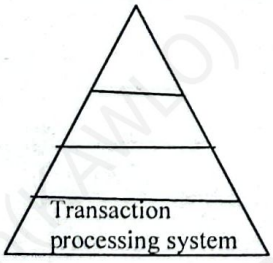

Figure 1

(ii) Briefly explain the main purpose of the different categories of information system in the pyramid.

- Executive information system **(2 marks)**
- Decision support system **(2 marks)**
- Management information system **(2 marks)**

7. (a) Table 1 is a description of a project for the development of a new information system.
Study the project layout carefully and then answer the questions that follow.

Table1

Task	Task description	Other information	Duration in days
A.	Create system specification	None	3
B.	Trial system	Cannot start until specification is completed	2
C.	Customize and test software	Commences after system trial	4
D.	Purchase of hardware and test	Cannot start until specification is completed	3
E.	Installation of software	Hardware and software test has to be completed	2
F.	Training of staff	As soon as software is customized	1

(i) Outline three (03) main roles of a Gantt chart in project management. **(3 marks)**

(ii) Represent the project outline given in Table 1 on a Gantt chart by completing a copy of the table below. **(5 marks)**

Task	No. of days	T	W	Th	F	M	T	W	Th	F	M	T	W	Th	F	M
A.	3															
B.	2															
C.	4															
D.	3															
E.	2															
F.	1															

(iii) State the critical path of the project and give your reason. **(2 marks)**

(iv) State any one Predecessor task and give your reason. **(2 marks)**

(b) Figure 2 represents a logic circuit.

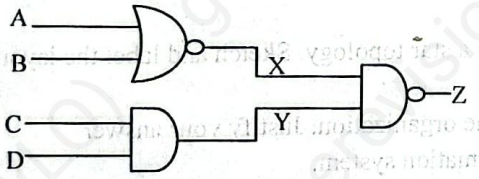

Figure 2

Study the circuit carefully and write down logic expressions for the indicated outputs.

(i) X in terms of A and B **(2 marks)**

(ii) Y in terms of C and D **(2 marks)**

(iii) Z in terms of A, B, C and D **(4 marks)**