

# GENERAL CERTIFICATE OF EDUCATION BOARD

## General Certificate of Education Examination

### COMPUTER SCIENCE 2

0595

JUNE 2022

ORDINARY LEVEL

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

**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.*

**Turn Over**

1. (a) (i) Give the full meaning of the following coding schemes:  
 - BCD  
 - EBCDIC  
 - ASCII (3 marks)
- (ii) State the length of bits used to represent a character in each of these coding schemes. (3 marks)
- (iii) With the aid of an example, explain why different lengths of bits are used to represent a character set for different coding schemes. (4 marks)
- (b) A new computerised system that supplies oxygen to a life-supporting system in a hospital has been developed to replace the old system.
- (i) Describe four methods of the implementation phase of an information system that can be used to replace the old system with the new system. (8 marks)
- (ii) Which of the methods is best suited for this replacement? Justify your answer. (2 marks)
- 
2. (a) (i) List the main components of the CPU. (3 marks)
- (ii) Briefly describe how the components of the CPU carry out the fetch-decode-execute cycle. (3 marks)
- (b) Consider the Boolean expression:  $P = (A + B) \cdot \overline{B}$
- (i) Construct the logic circuit diagram for the expression P. (3 marks)
- (ii) Construct the truth table for P. (3 marks)
- (c) Represent the algorithm written in pseudocode using a flow chart.
- ```

Start
    Check for face mask
    If absent
        Display: "put on your face mask"
    Else
        Get temperature
        If temperature is greater than 37.5°C
            Display: "go for Covid-19 test"
        Else
            Display: "you are okay, the door is open"
End.
  
```
- (8 marks)
- 
3. An inter-urban transport company carries out the following activities amongst others:
- cash office collects transport fares from clients;
  - clients pay fare online using electronic money transfer;
  - clients make travel reservations;
  - workers are paid every two weeks;
  - correspondences are sent to partners of the transport company;
  - buses and their respective drivers are scheduled on weekly basis.
- (a) State four (4) transactions of the company. (4 marks)
- (b) State the **type** of application software that can be used to computerize each transaction. (4 marks)
- (c) Give an example of an application software that can be used for each transaction. (2 marks)
- (d) How can graphics software be used to improve upon the business? (2 marks)
- (e) Explain two ways that the company can use the Internet to improve upon the business. (4 marks)
- (f) Briefly describe one method each that this company could apply to combat:
- (i) unauthorised access to the computer systems.
- (ii) unauthorised use of files. (4 marks)

4. (a) Storage devices could be classified in terms of:
- data storage technologies as **solid state, magnetic or optical storage technologies** and
  - data access mode as **random or serial access**. Given the following storage devices: **CD-ROM, Hard drive, USB key;**
- (i) Copy and complete table I. (6 marks)

Table I

| Device     | Storage Technology | Data access mode |
|------------|--------------------|------------------|
| CD-Rom     |                    |                  |
| Hard drive |                    |                  |
| USB        |                    |                  |

- (ii) Briefly describe the data access modes mentioned above. (4 marks)
- (b) Carry out the following using binary Arithmetic.
- (i)  $1101011_2 + 1101_2$
- (ii)  $110010_2 - 1011_2$  (4 marks)
- (c) Mary's office computer system is connected to the Internet. At shut down the screen reads "update and shutdown" or "shutdown". She chooses "update and shutdown". The next day the computer is powered on but fails to complete the booting process, rather it sends out beeps.
- (i) Identify the possible fault(s) with Mary's computer. (2 marks)
- (ii) Propose a preventive measure to the fault(s) identified. (2 marks)
- (iii) Briefly explain the meaning of the following as used in the passage
- Update
  - Boot process. (2 marks)

5. (a) Study the html tags carefully and answer the questions that follow:

```

1. <html>
2.   <title>
3.     <h1> WELCOME TO 0595 CSC </h1>
4.   </title>
5. <body>
6.   <h2> MY BELIEF </h2>
7. <hr/>
8.   <ul>
9.     <li> Modesty </li>
10.    <li> Honesty </li>
11.    <li> Pragmatism </li>
12.  </ul>
13. <p>
14.   <h2> My favourite Subjects </h2>
15. <ol>
16.   <li> Mathematics </li>
17.   <li> Physics </li>
18.   <li> Computer Science </li>
19. </ol>
20. </body>
21. </html>

```

- (i) Write in full the abbreviation html. (1 mark)
- (ii) Explain the roles of the tags <hr/> and <p>. (3 marks)
- (iii) Write down the result of the codes in lines 9 to 11 and lines 16 to 18. (6 marks)
- (b) Describe and give an example for each term
- (i) Utility software. (3 marks)
- (ii) Device driver. (3 marks)

- (c) Explain the difference between:
- (i) Object-oriented and procedural programming paradigms. (2 marks)
  - (ii) Sequence and choice constructs in algorithm design. (2 marks)

6. (a) Explain the functions of the following devices in computer network:
- (i) Modem
  - (ii) Repeater
  - (iii) Router (6 marks)
- (b) Based on the geographic categorisation of networks, explain briefly the type of network best suited for the following:
- (i) a college computer room;
  - (ii) a hospital;
  - (iii) the city of Yaounde. (6 marks)

- (c) Justify your answers in (b) above. (3 marks)
- (d) Figure 1 shows a file path.

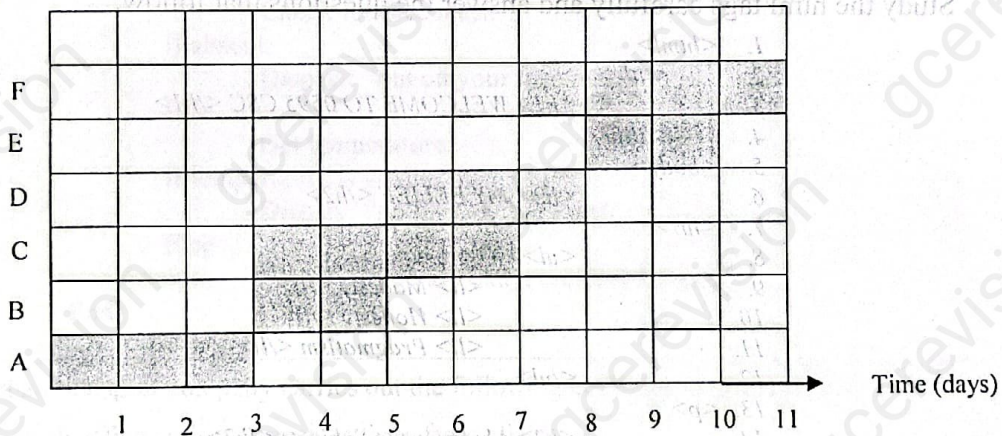
C : CSC / Unit1 / John.docx

A B C D

Figure 1

- (i) Name the sections of the file path labelled A, B, C, D. (4 marks)
- (ii) Give the significance of the part labelled D. (1 mark)

7. (a) Study the following Gantt Chart for a project and then answer the questions that follow:



- (i) Define the term 'critical path' in project management. (2 marks)
- (ii) Determine the critical path of the above project. (3 marks)
- (iii) Define the term 'slack time' of a task. (2 marks)
- (iv) Identify activities in the project that have slack time and calculate their respective duration in days? (4 marks)

- (b) A visit to a computer room of a certain company reveals the following:

- the chair used by the computer operator is not adjustable;
- some bulbs in the room are not lit;
- the operator has to press hard on some keys of the keyboard when typing.

- (i) Briefly describe three (3) health hazards the operator may be exposed to after working for long hours. (6 marks)
- (ii) Explain the advice that the company can be given to prevent the health hazards described in (i) above. (3 marks)