

COMPUTER SCIENCE 2  
595

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

JUNE 2015

ORDINARY LEVEL

Subject Title	COMPUTER SCIENCE
Paper No.	Paper 2
Subject Code No.	595

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 are NOT allowed.

1. (a) Define:
- (i) Computer Network (3 marks)
  - (ii) Network Protocol (2 marks)
  - (iii) Bandwidth (2 marks)
- (b) Briefly describe the functions of each of the following networking devices:
- (i) Router (3 marks)
  - (ii) Multiplexer (2 marks)
  - (iii) Network interface card (2 marks)
- (c) Briefly describe, giving examples, the roles of the following:
- (i) Primary storage (3 marks)
  - (ii) Secondary storage (3 marks)
2. (a) State TWO differences between a high level language and a low level language. (4 marks)
- (b) (i) What is a control system? (2 marks)
- (ii) A control system is designed to continuously read temperatures in Centigrade, C and convert them to Fahrenheit, F. If  $C = -25$ , the system halts, else the temperature is converted to Fahrenheit, F, where  $F = \frac{9}{5}C + 32$ , and then the next temperature read, and the process continues.
- (c) Use a flow chart to illustrate the functioning of the system. (3 marks)
- (c) Data verification and data validation are techniques used to ensure data integrity in a database. Briefly explain what is meant by:
- (i) data verification (2 marks)
  - (ii) data validation (2 marks)
  - (iii) data integrity (2 marks)

3. Figure 1 shows the message prepared for an advert by TechCam Cameroon Ltd

TechCam Cameroon Ltd  
 Building materials and supplies  
 Email: Techcamcameroon@yahoo.com  
 Tel: (+237) 22222221

Figure 1.

- (a) Describe FOUR ways in which the features of a word processing package may be used to improve on the quality of the advert. (4 marks)
- (b) TechCam branches are located in many towns in Cameroon. Each branch office has several computers connected in a network and staff in the different offices communicate by email.
- (i) Give two advantages and two disadvantages of email communication (4 marks)
  - (ii) The Manager of TechCam plans to provide video conferencing facilities for the company
    - What is video conferencing? (2 marks)
    - Other than keyboard, mouse, and screen, list two accessories that a computer in a video conference must have. (2 marks)
    - Give two advantages of video conferencing to the company (2 marks)
- (c) A telephone conversation can be described as full duplex communication. What do you understand by full duplex? (2 marks)
- (d) Other modes of communication are half duplex and simplex. State and explain a real life situation in which each can be used. (2 marks)
- (i) Half duplex (2 marks)
  - (ii) Simplex (2 marks)

4. (a) Briefly explain what is meant by the following, giving examples (3 marks)  
 (i) Batch processing (3 marks)  
 (ii) Real-time processing
- (b) Illustrating your answer with an annotated diagram, state the main difference between (4 marks)  
 (i) Peer-to-peer network and client-server network (3 marks)  
 (ii) Parallel and serial data transmission
- (c) (i) Define the following terms: file, directory, path name (3 marks)  
 (ii) Explain the role of an extension in a file name. Give THREE examples and indicate what they represent. (4 marks)

5. (a) Briefly explain the major uses of the Internet in each of the following fields: (3 marks)  
 (i) Health care and medicine (3 marks)  
 (ii) Education (3 marks)  
 (iii) Recreation (2 marks)
- (b) Define the following terms as used in programming: (2 marks)  
 (i) Compiler (2 marks)  
 (ii) Interpreter
- (c) Given the following Boolean equation:  $Z = \overline{A} \cdot B + A \overline{B}$   
 (i) Draw the Boolean Circuit (3 marks)  
 (ii) Complete the corresponding truth table below (5 marks)

A	B	$\overline{A}$	$\overline{B}$	$\overline{A} \cdot B$	$A \cdot \overline{B}$	Z
0	0					
0	1					
1	0					
1	1					

6. (a) Define each of the following: (2 marks)  
 (i) Algorithm (2 marks)  
 (ii) Control structure
- (b) A school has decided to create a LAN to facilitate data and information flow. The school also intends to connect the LAN to the Internet.  
 Describe with diagrams, TWO different topologies that the LAN can have. (6 marks)
- (c) Briefly describe services provided by:  
 (i) Print server. (2 marks)  
 (ii) Web Server (2 marks)
- (d) Briefly explain the terms:  
 (i) Repetitive Strain Injury (2 marks)  
 (ii) Computer Vision Syndrome (2 marks)  
 (iii) Ergonomics (2 marks)

7. (a) (i) Explain the difference between the system development life cycle and the program development life cycle (2 marks)
- (ii) State TWO reasons why system documentation is very important in system development. (2 marks)
- (b) (i) What are flowcharts and dataflow diagrams used for? (4 marks)
- Draw the flow chart symbols for the following:
- (ii) Decision
- (iii) Process
- (iv) Output
- (v) Connector (4 marks)
- (c) (i) Explain the difference in the functioning of impact and non-impact printers. (4 marks)
- (ii) Explain the functioning of dot matrix printers. (4 marks)