

**CAMEROON PAST GCE ORDINARY LEVEL
COMPUTER SCIENCE PAPER 2 QUESTIONS
FROM 2016 – 2018**

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1. JUNE 2016

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

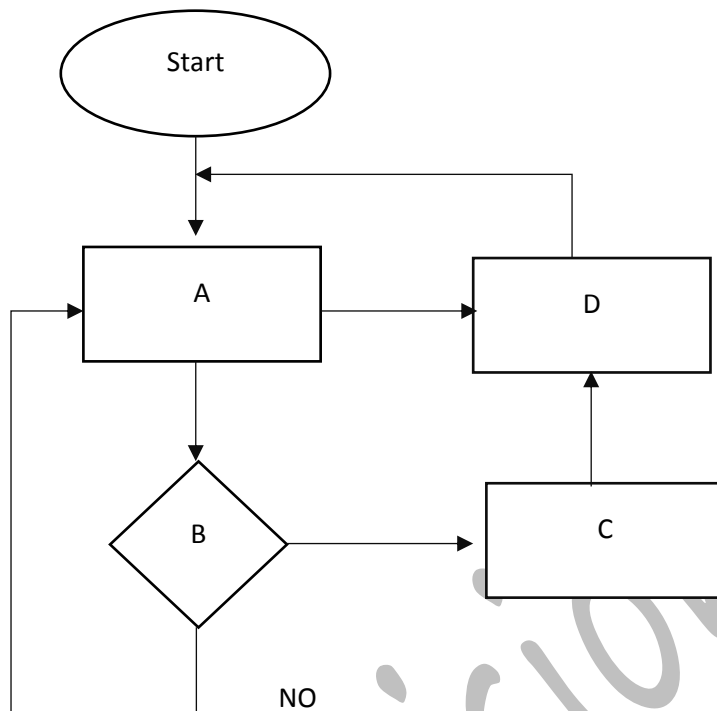
- (ii) Complete the following truth table

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)**

2. JUNE 2017

Instructions: answer any five questions (Two hours)

1. (a) briefly describe the following terms in relation to data security
 - (i) Data Encryption (2 marks)
 - (ii) Backup (2 marks)
 - (iii) Fire wall (2 marks)

(b) Briefly explain what is meant by data integrity (3 marks)

(c) state the difference between data verification and data validation (4 marks)

(d) (i) Briefly explain what you understand by computer simulation (2 marks)

(ii) state two advantages and two disadvantages of computer simulation (4 marks)

2. (a) Explain briefly the following data processing methods
 - (i) Batch processing (2 marks)
 - (ii) Online processing (2 marks)

(b) Describe the following types of human-computer interface
 - (i) Command line interface (3 marks)
 - (ii) Graphical User Interface (3 marks)
 - (iii) Menu-driven interface (3 marks)

(c) State the main role of each of the following network devices
 - (i) Bridge (1 mark)
 - (ii) Router (2 mark)
 - (iii) Modem (2 marks)

(d) Explain the difference between synchronous and asynchronous data transmission (2 marks)

3. (a) Draw a labelled diagram showing the basic components of a Central Processing Unit (4 marks)
- (b) State three system buses that connect the components in (a) above (3 marks)
- (c) Name four steps in the machine instruction cycle (4 marks)
- (d) The following algorithm is intended to read three numbers and determine their product.

Start

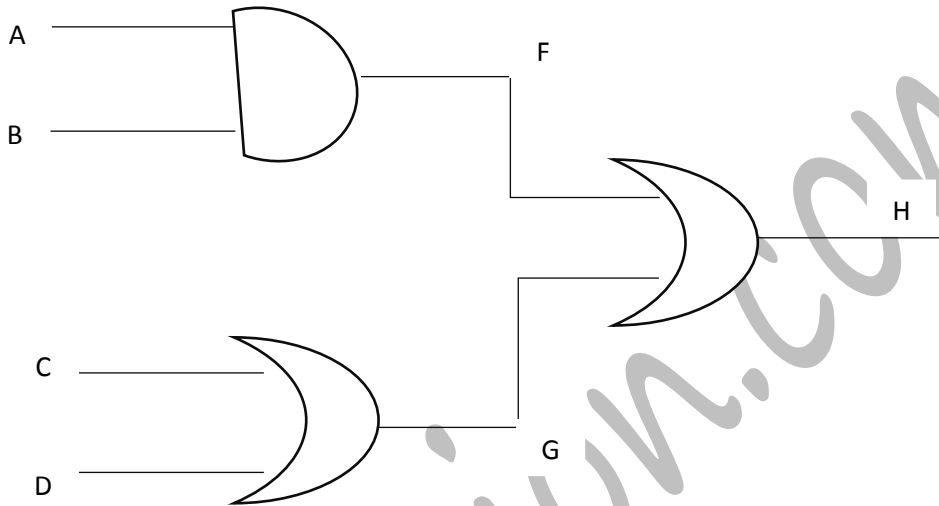
1. Set Count = 1
2. While Product = 1
3. While (Count <= 3) Do
4. Get a Number, N
5. Set Product = Product * N
6. Set Count = Count + 1
7. Print Product
8. Endwhile

END

Assume that the three numbers that are read in line 4 are 2,3 and 5

- (i) Determine the output that is printed on line 7 each time the loop instructions are executed. **(3 marks)**
- (ii) Draw a flow chart for the algorithm **(6 marks)**

4. (a) Given the logic circuit below:



- (I) Write the logical expression for F and G **(2 marks)**
- (II) Write TWO logic expression for H, first in terms of F and G, and then in terms of A, B, C and D **(3 marks)**
- (III) Given the following inputs to the logic circuit: A = TRUE, B = FALSE, C = FALSE, D = TRUE, determine the values of F, G and H **(3 marks)**

(b) With 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)**

(c) Use binary arithmetic to evaluate

(i) $1100101 - 1010$ **(2 marks)**

(ii) $1101011 + 1101$ **(2 marks)**

(d) Convert the octal number 505 to a binary number **(2 marks)**

5. (a) Give simple definitions or explanations for the terms: - **character, field, record, file, and database** **(5 marks)**

(b) Assume you want to create a database of employees of a company, the departments they work for, and their salaries. The tables below show sample data in the database.

EMPLOYEE

ID	FNAME	LNAME	DEPTCODE	SALCODE
1	John	Doe	EN	S1
3	Mary	Hopkins	MK	S2
4	Peter	Miles	HR	S2
6	Chris	Jenkins	EN	S3
8	Susan	Jenkins	MK	S1

DEPARTMENT

DEPTCODE	DEPARTMENT
EN	Engineering
MK	Marketing
HR	Human Relations

SALARY

SALCODE	SALARY
S1	300000
S2	250000
S3	200000
S4	100000

- (I) State the number of fields and records in the EMPLOYEE table **(2 marks)**
- (II) What do you understand by the term key database? **(2 marks)**
- (III) What is the most appropriate key for each of the three tables **(3 marks)**
- (IV) With the keys chosen above, if the company has another employee whose FNAME, LNAME, DEPTCODE and SALCODE are the same as for John Doe, how can the database management system distinguish between these two employees? **(2 marks)**
- (V) Would it be possible to add another employee called Johnny Walker whose ID is 6? Explain your answer. **(2 marks)**
- (VI) Explain the problem that will arise if you try to add an employee whose SALCODE is S10, without making any other change in the database. What change would you make so that this employee's data can be stored in the database? **(4 marks)**

6. John wants to set up a company to train people on **Computer Literacy**. Some of the people to train only want to know about using machines running the Microsoft Windows **Operating System**, while others only want to know about using machines running the Linux operating system. John decides to set up two personal computer laboratories: Lab A with Microsoft Windows and Lab B with Linux computers

Answer the following questions in relation to the scenario presented above.

- (a) (i) What do you understand by the terms computer literacy? **(2 marks)**
- (ii) State FOUR functions of an operating system. **(4 marks)**
- (b) Answer the questions in this section to explain the types of training that John should provide his trainees
 - (I) List five hardware components that the trainees need to know about so that they can understand what happens from the time they type in a document to the time a hardcopy is produced **(2 marks)**
 - (II) Name one hardware device, and the most relevant kind of application software that can be used to improve the typing skills of the trainees **(2 marks)**

- (III) State the category of network application software that must be installed on each computer to enable easy access to the Web? Give two examples of his category of software **(4 marks)**
- (IV) List four important categories of application software that should include inn the training. For each of them, state what it is used for. Your list should NOT include your answer in (iii) above **(6 marks)**
-
7. (a) Implementation is one of the stages of SDLC, explain the following four conversation methods that can be used during the implementation:
- (i) Parallel conversion **(2 marks)**
 - (ii) Plunge conversion **(2 marks)**
 - (iii) Pilot conversion **(2 marks)**
 - (iv) Piecemeal conversion **(2 marks)**
- (b) Explain the following in relation to programming languages
- (i) Machine Language **(3 marks)**
 - (ii) Assembly language **(3 marks)**
 - (iii) High level language **(3 marks)**
- (c) State two disadvantages and one advantage of a machine language **(3 marks)**

3. JUNE 2018

COMPUTER SCIENCE 2
0595

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

JUNE 2018

ORDINARY LEVEL

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

Two Hours

Answer any FIVE questions.

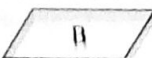
All questions carry 20 marks each. For your guidance, the approximate mark for each part of a question is indicated in brackets.

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 are NOT allowed.

Turn Over

1. (a) Write out the full meaning of each of the abbreviation listed below as used in computing.
- (i) SPLC
 - (ii) BIOS
 - (iii) PDF
 - (iv) CPU
- (4 marks)
- (b) (i) List the constituent parts of the CPU. (3 marks)
- (ii) State briefly, how each of the parts functions. (7 marks)
- (iii) Describe what happens at each stage in the Fetch- Decode- Execute cycle. (6 marks)
-
2. (a) Briefly describe the role of the following networking devices.
- (i) Network interface card (2 marks)
 - (ii) Modem (2 marks)
 - (iii) Router (2 marks)
- (b) (i) State the role of the following flowchart symbols labelled A, B and C. (3 marks)
- 


- (ii) Explain the difference between pseudocode and flow chart. (2 marks)
- (c) Study the algorithm below and answer the questions that follow.
- ```

1. Start
2. Get Mark
3. Get Coef
4. Final_Mark = Mark*Coef
5. IF (Final_Mark) < 50 Then
 5.1 Display "You have failed. Work harder."
Else
 5.2 Display "You have passed. Keep it up"
6. Display "Goodbye."
7. Stop

```
- (i) State three characteristics of a good algorithm. (3 marks)
  - (ii) Run the algorithm with the values 12 and 5 for mark and coef, respectively. Write the output. (3 marks)
  - (iii) Identify two programming constructs used in the algorithm stating clearly the line numbers. (3 marks)
- 
3. (a) A school attempts the computerization of her processes by storing all data in files created using word processing software.
- (i) Give two reasons why word processing software is a poor choice of software for this purpose. (4 marks)
- The school now decides to use a database management system to handle its data.
- (ii) What is a database management system? (2 marks)
  - (iii) What is a database? (2 marks)
  - (iv) What is a key? (2 marks)
  - (v) Explain what is meant by data integrity? (2 marks)
- (b) What do you understand by a user interface? (2 marks)
- (c) Give one characteristics of each of the following user interface types:
- (i) Graphical User Interface. (2 marks)
  - (ii) Voice interface (2 marks)
  - (iii) Command Line Interface (2 marks)

4. (a) Given the following characteristics of a hard disk.

|                              |     |
|------------------------------|-----|
| Number of platters           | 2   |
| Number of tracks per platter | 100 |
| Sectors per track            | 16  |
| Bytes per Sector             | 512 |

Calculate:

- (i) The storage capacity of the disk in Bytes. (3 marks)  
 (ii) The exact storage capacity of the hard disk in Kilobytes. (2 marks)

- (b) State the importance of:

- (i) Disk defragmentation. (2 marks)  
 (ii) File backups. (2 marks)  
 (iii) Updating an antivirus software. (2 marks)

- (c) In relation to computer storage, explain the functions of the following components:

- (i) Read Only Memory. (2 marks)  
 (ii) Random Access Memory. (2 marks)  
 (iii) Hard disk. (2 marks)

- (d) (i) What is cybercrime? (1 mark)  
 (ii) Name any two common cybercrimes. (2 marks)

5. (a) Explain the following security notions :

- (i) Confidentiality (2 marks)  
 (ii) Software damage (2 marks)  
 (iii) Unauthorized access (2 marks)  
 (iv) Unauthorized use (2 marks)

- (b) State two ways in which any two of the security issues mentioned in (a) above can be checked.

(4 marks)

- (c) Showing clearly all necessary steps, convert:

- (i) the hexadecimal number DC to octal (4 marks)  
 (ii) the binary number 10011101 to decimal (4 marks)

6. (a) (i) Rearrange the following phases of the SDLC from earliest to latest:

Design,  
 Analysis,  
 Implementation,  
 User support.

(2 marks)

- (ii) State two distinct activities each in the Design and Analysis phases.

(4 marks)

- (b) State the roles of each of the following persons in Information System Development:

- (i) Systems Analyst (2 marks)  
 (ii) Programmer (2 marks)

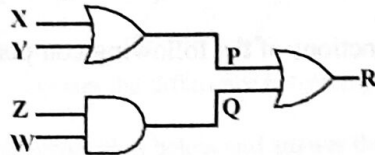
- (c) (i) Write down the abbreviation WWW in full. (1 mark)  
 (ii) Give the difference between WWW and the Internet. (2 marks)  
 (iii) Give the difference between a blog (weblog) and an Internet relay chat (2 marks)

Turn Over

- (d) (i) What is social network? (1 mark)  
 (ii) State two examples of social networks. (2 marks)  
 (iii) Give one advantage and one disadvantage of social networks (2 marks)

7. (a) (i) What is an operating system? (3 marks)  
 (ii) Outline any three functions of an operating system. (3 marks)
- (b) (i) Describe two differences between low and high level programming languages. (2 marks)  
 (ii) Give one example of each of the programming languages in (i) above. (2 marks)
- (c) Explain the functioning of:  
 (i) Interpreters (2 marks)  
 (ii) Compilers (2 marks)

- (d) Given the logic circuit below write down the expression for the output:



- (i) P in terms of inputs X, Y (2 marks)  
 (ii) Q in terms of inputs Z, W (2 marks)  
 (iii) R in terms of inputs P, Q (2 marks)