CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate Education Examination

JUNE 2019   **ADVANCED LEVEL**

Subject Title	Information and Communication Technologies
Paper No.	Paper 2
Subject Code No.	0796

Two and a half hours

Answer any SIX questions.

All questions carry 17 marks each. For your guidance, the approximate mark for each part of a question is indicated in brackets.

You will be marked on your ability to use good English to organize information clearly and to use specialist vocabulary where appropriate.

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

Turn Over

(i)   A supermarket uses a computerized stock control system to run its warehouse.

     (a)   State the device that can be used to automatically record the items bought by customers. Explain how the items are prepared for the data capture and how the device is used in the process during sales. **(4 marks)**

     (b)   Explain how customers can make payments using credit cards. **(2 marks)**

     (c)   Given that the invoice table for some transactions stored in the system is:

Product number	Unit price	Product name
A-102	400.00	Oil
A-444	625.00	Mouse
A-303	350.00	Keyboard

       Write the SQL statement that will enable you display product number and unit price with a unit price less than 500. **(2 marks)**

(ii)   (a) What is online Banking? **(1 mark)**

     (b)   Give TWO advantages of online banking. **(2 marks)**

     (c)   Give TWO drawbacks to the bank for introducing online banking. **(2 marks)**

(iii)   A company is planning to have a video-conference in other to advertise its products.

     (a)   State THREE special hardware that can be used during the conference and give a function of each hardware cited. **(3marks)**

     (b)   Give TWO advantages of video conferencing to the company. **(2 marks)**

     (c)   Describe TWO communication aspects that affect the speed of communication. **(2 marks)**

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2.   (i)   (a)   Explain TWO impacts of computer virus to a school information system. **(2 marks)**

     (b)   Give TWO ways to protect computers in a school from virus attack. **(2 marks)**

     (c)   State two computer health related problems and give a measure to prevent each. **(2 marks)**

   (ii)   (a)   Briefly explain relational database model. **(2 marks)**

     (b)   Explain THREE disadvantages of a database management system. **(3 marks)**

     (c)   A school intends to create a student record database, state and explain TWO rules from the Data Protection Act you would advise the school to comply with. **(2 marks)**

  (iii)   Give ONE advantage and ONE disadvantage of each of the following printers:

     (a)   Laser printer. **(2 marks)**

     (b)   Inkjet printer. **(2marks)**

3. (i)   (a) State and explain the functions of ONE sub component in the ALU of the CPU. **(2 marks)**

     (b) State and explain TWO stages of the instruction cycle carried out in the control unit. **(2marks)**

   (ii)   An office has four computers. The manager wants to connect the computers in a LAN.

     (a) Name a network device which would be possessed by each computer in order to be connected to the network. **(1 mark)**

     (b) Give TWO reasons why the manager will not prefer a wireless technology. **(2 marks)**

     (c) State and explain a network topology that is suitable to this office. **(2 marks)**

     (d) Explain TWO security measures that should be put in place in the above office to secure such network from authorized access or misuse. **(2 marks)**

(iii) Study the algorithm given below

      Start

         Step I: Input an integer, p.

         Step 2: If p is even Step 3:

              $y \leftarrow 3+p$

         Step 4: else

         St ep 5: $y \leftarrow -2+p,$

         Step 5: print y.

       Stop.

(a) What is the objective of this algorithm?   **(2 marks)**

(b) Draw the flowchart of the algorithm.   **(4 marks)**

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(i) Explain the main function of the following in an intranet,

  (a) Firewall.   **(2 marks)**

  (b) Switch.   **(2marks)**

(ii) An outsourcing software has been produced for your organization.

  (a) Give THREE areas you will use to investigate the effectiveness of the software.   **(3 marks)**

  (b) Give TWO importance of outsourcing   **(2 marks)**

(iii) Give the function of the following in computer system:

  (a) BIOS.   **(2 marks)**

  (b) Sound Card.   **(2 marks)**

  (c) Cache Memory.   **(2 marks)**

  (d) Motherboard.   **(2 marks)**

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5. (i) (a) What is recursion?   (**1 mark**)

    (b) Give ONE example of a recursive function.   **(1 mark)**

  (ii) Almost all organizations have computer-based information system

    (a) Give TWO advantages of an information system to a business organization.   **(2 marks)**

    (b) Identify and explain the THREE levels of the organizational hierarchy.   **(3 marks)**

  (iii) A software development schedule is shown in the table below.

Task	Description	Duration (working days)	Predecessor(s)
A	Requirement Analysis;	5	--------------
B	Systems Design	15	A
C	Programming	25	B
D	Telecoms	15	B
E	Hardware Installation	30	B
F	Integration	10	C, D
G	System Testing	10	E, F
H	Training/Support	5	G
I	Handover	5	H

(a) Draw the PERT chart for this project.   **(4 marks)**

(b) Determine the critical path of this project.   **(2 marks)**

(c) Give TWO slack tasks, stating their slack times.   **(2 marks)**

(d) Give TWO characteristics you will use to determine that a project was good.   **(2 marks)**

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6. (i) (a) Define cloud computing and dedicated server. **(2 marks)**
    (b) Give THREE advantages of cloud computing has over dedicated server. **(3 marks)**

  (ii) Explain each of the following computer crimes and give a method to prevent each:
    (a) Hacking. **(2 marks)**
    (b) Spam. **(2 marks)**
    (c) Spyware. **(2 marks)**

      (iii) (a) Copy and complete the table below by stating either the software type or give an example.

No	Software type	Example
1		
2	General purpose	
3		Recycler
4	Language translator	

  (b) Explain the functions of the operating System during managing memory. **(4 marks)**

7. (i)(a) Give TWO effects of increasing the resolution or the number of pixels of a digital camera. **(2 marks)**
    (b) What is automatic input devices and give two examples. **(2 marks)**

  (ii) To send documents, companies sometimes use emails or post office.
    (a) Give two advantages of using e-mails over post office. **(2 marks)**
    (b) Give two reasons why post office might be preferable. **(2 marks)**
    (c) Brandon has just bought a laptop computer. Give TWO requirements needed to enable him send and receive e-mails using the laptop. **(2 marks)**

  (iii)(a) Give THREE ways in which a System Analyst can gather information to design a new system for an organization. **(3 marks)**
    (b) One of the phases of SDLC is design. List all the phases of the SDLC in chronological order. **(2 marks)**
    (C) State TWO activities carried out in the design phase of the SDLC **(2 marks)**

8. (i) A digital system is described by the equation $F = \overline{A}.\ \overline{B} + A.\ B$.
    (a) Construct the truth table of the System $\overline{\overline{}}$ **(2marks)**
    (b) Use De Dorgan's theorem to simplify $\overline{(A.B + A.B)}$ **(2 marks)**

  (ii) A company uses relational database for its business transactions.
    (a) Give TWO advantages of relational database over flat file system. **(2 marks)**
    (b) Give TWO criteria you will use to determine if a table is in the First Normal Form (1NF). **(2 marks)**
    (c) Give THREE functions of a Database Administrator to this company. **(3 marks)**

  (iii) (a) What is an algorithm? **(1 mark)**
    (b) Describe ONE way to represent an algorithm **(2marks)**
    (c) Write an algorithm to calculate and display the sum of three numbers. **(3marks)**