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CICT PART I SECTION I

INTRODUCTION TO COMPUTING

MONDAY: 27 November 2017.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

QUESTION ONE

- (a) The EBCDIC code was an effort to standardise information interchange between different brands of computer hardware.

Required:

Complete the following table clearly showing your working where necessary:

<u>Character</u>	<u>Decimal index</u>	<u>Binary equivalent</u>
B	66	?
C	99	?
Space	?	11111111
0 (Zero)	?	?
9	?	?

(7 marks)

- (b) Computer networks have two dimensions for classification namely; transmission technology and scale.

Required:

- (i) Suggest two examples of each classification. (2 marks)
- (ii) Outline four distinctive properties of home networks. (4 marks)
- (c) (i) Summarise three differences between online data processing system and batch data processing system. (3 marks)
- (ii) Identify four advantages of random file organisation method. (4 marks)

(Total: 20 marks)

QUESTION TWO

- (a) Suggest four features which you might consider when buying a computer keyboard. (4 marks)
- (b) Compare "blue-ray disks" and "standard DVD optical storage devices" under the following:
- (i) Storage capacity. (2 marks)
- (ii) Cost. (2 marks)
- (iii) Availability. (2 marks)
- (c) Outline five steps of the booting process of a computer system. (5 marks)
- (d) Explain five purposes of computer software configuration management. (5 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Write the boolean expression and the truth table for the following logic gates:
- (i) 2 input OR. (2 marks)
 - (ii) 2 input NAND. (2 marks)
 - (iii) 2 input AND. (2 marks)
- (b) Summarise eight steps you could take when troubleshooting a computer system. (8 marks)
- (c) Computers are used in modern offices, commerce and industry, homes and education institutions among other areas.
Citing relevant technologies, outline the uses of computers in the following areas:
- (i) Education. (2 marks)
 - (ii) Engineering. (2 marks)
 - (iii) Production. (2 marks)
- (Total: 20 marks)**

QUESTION FOUR

- (a) The designers of computer memory always use a hierarchical memory organisation strategy in order to resolve the conflict of speed and capacity maximisation on one side and cost minimisation on the other.
- Required:**
Identify three top-down hierarchical computer memory structures. (3 marks)
- (b) Citing circumstances under which it is ideal, distinguish between “parallel data transmission” and “serial data transmission”. (4 marks)
- (c) Outline two advantages and two disadvantages of using voice data input and output technology. (4 marks)
- (d) A survey of 85 prospective students revealed the following information:
Thirty five students wanted to study Information Communication Technology (ICT). Thirty seven students wanted to study Cost Accounting and twenty six students wanted to study Law. Twenty students wanted to study ICT and Cost Accounting, fourteen wanted to study ICT and Law, while three wanted to study Cost Accounting and Law. Two students wanted to study all the three subjects.
- Required:**
- (i) Venn diagram. (3 marks)
 - (ii) The number of students who wanted to study ICT or Law. (2 marks)
 - (iii) The number of students who did not want to study any of the three subjects. (2 marks)
 - (iv) The number of students who wanted to study ICT and Cost Accounting, but not Law. (2 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) Describe five types of computer systems software. (5 marks)
- (b) (i) Draw a truth table for a NOR gate with two inputs. (2 marks)
- (ii) Simplify the following Boolean expression:
 $(\bar{A} B \bar{C}) + (A \bar{B} C)$ (3 marks)
- (iii) Perform 2's complement subtraction of $(7)_{10} - (11)_{10}$. (5 marks)
- (c) (i) Explain the term “device driver”. (2 marks)
- (ii) Highlight three types of device drivers. (3 marks)
- (Total: 20 marks)**
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