KASNEB

DICT LEVEL II

COMPUTER NETWORKING

TUESDAY: 17 November 2015.   **Time Allowed: 3 hours.**

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

QUESTION ONE
(a)   (i)   Describe the term "fibre optic cable" in the context of computer networking.   (4 marks)

(ii)   Analyse five advantages of fibre optic cables over other media of data transmission.   (10 marks)

(b)   Highlight the role of the following layers in the open systems interconnection (OSI) model:

(i)   Session layer.   (2 marks)

(ii)   Network layer.   (2 marks)

(iii)   Transport layer.   (2 marks)
                                                                                                (Total: 20 marks)

QUESTION TWO
(a)   Differentiate between the following types of computer networks:

(i)   LAN and WAN.   (4 marks)

(ii)   Peer-to-peer network and client-server network.   (4 marks)

(b)   (i)   Define the term "network operating system".   (2 marks)

(ii)   List two examples of generic network operating systems.   (2 marks)

(iii)   Explain four functions of a network operating system.   (8 marks)
                                                                                                (Total: 20 marks)

QUESTION THREE
(a)   State the primary similarity and primary difference between a "protocol" and an "interface" in the context of computer
networking.   (2 marks)

(b)   Citing a suitable example in each case, enumerate the major components that constitute the following nodes in a
computer network:

(i)   End node.   (3 marks)

(ii)   Intermediate node.   (3 marks)

(c)   (i)   Explain the meaning of the term "wireless network".   (2 marks)

(ii)   Outline five advantages and five disadvantages of a wireless network.   (10 marks)
                                                                                                (Total: 20 marks)

QUESTION FOUR
(a)   Describe the following devices used in several networking environments:

(i)   Gateway.   (2 marks)

(ii)   Router.   (2 marks)

(iii)   Switch.   (2 marks)

(b)   Outline six characteristics that define the efficiency and effectiveness of a computer network.   (6 marks)

(c)   You work as a network administrator in XYZ Company Ltd. One of your employees reported that she was unable to access the network from her desktop computer.

Required:
Citing reasons in each case, propose four steps that you would take to troubleshoot the network problem.   (8 marks)

(Total: 20 marks)

QUESTION FIVE

(a)   Define each of the following computer networking terms:

    (i)   Modem.   (2 marks)

    (ii)   Flow control.   (2 marks)

    (iii)   Parity check.   (2 marks)

    (iv)   Network interface card (NIC).   (2 marks)

(b)   Identify the class and default subnet mask of the internet protocol (IP) address 217.65.10.7.   (2 marks)

(c)   Explain the meaning of the term "fault management" as used in computer networking.   (2 marks)

(d)   (i)   List four types of physical network topologies.   (4 marks)

    (ii)   Highlight an advantage of each of the types of network topologies listed in (d) (i), above.   (4 marks)

(Total: 20 marks)

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