

# 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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