



kasneb

DICT LEVEL II

COMPUTER NETWORKING

TUESDAY: 26 November 2019.

Time Allowed: 3 hours.

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

QUESTION ONE

- (a) Highlight six possible disadvantages of computer networks. (6 marks)
- (b) Enumerate four functions of a network interface card (NIC). (4 marks)
- (c) Explain the purpose of the following network troubleshooting techniques:
- (i). Ping. (2 marks)
 - (ii) Netstat. (2 marks)
 - (iii) NSlookup. (2 marks)
- (d) Outline four factors that affect the performance of a computer network. (4 marks)
- (Total: 20 marks)**

QUESTION TWO

- (a) Define the following terms as used in data communication:
- (i) Attenuation. (2 marks)
 - (ii) Distortion. (2 marks)
 - (iii) Noise. (2 marks)
- (b) Differentiate between global system for mobiles (GSM) and long term evolution (LTE) mobile network technologies. (4 marks)
- (c) Logical security measures are normally recommended approaches for network insecurity incidences. Outline four such measures. (4 marks)
- (d) Describe three multiplexing techniques used in data transmission. (6 marks)
- (Total: 20 marks)**

QUESTION THREE

- (a) Citing three characteristics, distinguish between peer to peer and client-server network architecture. (6 marks)
- (b) Describe three types of bridges that could be used to interconnect two computer networks. (6 marks)
- (c) The IP protocol and its associated routing protocols are possibly the most significant of the entire TCP/IP suite. Assess four functions of TCP/IP in transmission. (4 marks)

- (d) A WLAN will make it simple to add or move workstations/clients and to install access points to provide connectivity in areas where it is difficult to lay cable.

In the context of a WLAN, define:

(i) Access point. (2 marks)

(ii) Client. (2 marks)

(Total: 20 marks)

QUESTION FOUR

- (a) Distinguish between the following pairs of terms:

(i) Single mode and multi-mode fiber cables. (2 marks)

(ii) Non conductive and conductive optical-fiber cables. (2 marks)

- (b) A switch forwards data only to the port on which the destination system is connected.

In relation to the above statement, analyse three switching methods. (6 marks)

- (c) You are the network system administrator for ABC Ltd. You need to set up a network topology that connects networking components along a single cable or using a series of cable segment connected linearly.

(i) With the aid of an illustration, identify the type of network topology to be setup. (2 marks)

(ii) Outline two advantages and two disadvantages of the topology identified in (c) (i) above. (4 marks)

- (d) Mr Njue, a blogger, noticed that when he visits a web page on different occasions and at different locations, pages load at different speeds.

Required:

Advise Mr Njue on four factors that determine how quickly the page loads on a network. (4 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Explain four benefits of software defined networks. (8 marks)

- (b) Describe two characteristics of a wide area network (WAN). (4 marks)

- (c) Personal area networks (PANs) have revolutionised the way information is shared in an organisation.

Required:

(i) State four applications of a PAN. (4 marks)

(ii) Outline four limitations of PANs. (4 marks)

(Total: 20 marks)

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