kasneb

DICT LEVEL II

COMPUTER NETWORKING

MONDAY: 30 August 2021.   **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 qualities of a good computer network technician.   (6 marks)

(b)   Illustrate three types of physical computer network topologies.   (6 marks)

(c)   John Karuku, a company manager noted latency in the computer network of his company.

      Required:
      As a network technician:

      (i)   Explain the meaning of the term "latency" as used in computer networking.   (2 marks)

      (ii)   Describe three causes of latency in computer networks.   (6 marks)
                                                                                       (Total: 20 marks)

QUESTION TWO
(a)   Distinguish between the following terms:

      (i)   "Fast Ethernet" and "Giga Ethernet".   (2 marks)

      (ii)   "Wired router" and "Wireless router".   (2 marks)

(b)   Data Link Layer in the open systems interconnection (OSI) model hides the details of underlying hardware and presents itself to the upper layer as the medium to communicate.

      Required:
      Assess four tasks performed by Data Link Layer.   (4 marks)

(c)   Mr. Nzau needed to expand a network for his small business. The supplier advised him to buy a switch rather than a hub.

      Required:
      (i)   Outline six advantages of using a switch rather than a hub.   (6 marks)

      (ii)   Highlight six disadvantages of using a hub.   (6 marks)
                                                                                       (Total: 20 marks)

QUESTION THREE
(a)   Describe three file access permission levels used when sharing files and folders on a network.   (6 marks)

(b)   Summarise six functional requirements of the two-tier client server network architecture.   (6 marks)

(c)   Tom is the network administrator of ABZ Company Ltd. He plans to create several subnets for the company's computer network.

      Outline five benefits that could be accrued from the above action.   (5 marks)

(d)   List three mail delivery protocols used with the transmission control protocol/internet protocol (TCP/IP).   (3 marks)
                                                                                       (Total: 20 marks)

QUESTION FOUR

(a)   Describe the function of each of the following network diagnostic tools:

      (i)   Route.   (2 marks)

      (ii)   ipconfig.   (2 marks)

      (iii)   Ping.   (2 marks)

(b)   Summarise four advantages of a wireless local area network over a wired local area network.   (4 marks)

(c)   State four types of internet connections that a business organisation can use to access the internet.   (4 marks)

(d)   Explain the following security concerns on data sent over a computer network:

      (i)   Authentication.   (2 marks)

      (ii)   Integrity.   (2 marks)

      (iii)   Confidentiality.   (2 marks)
                                                                                          (Total: 20 marks)

QUESTION FIVE

(a)   Describe the following types of Network Operating Systems (NOS):

      (i)   Peer-to-peer.   (2 marks)

      (ii)   Client/server.   (2 marks)

(b)   Suggest six factors you would consider when selecting a data transmission medium.   (6 marks)

(c)   Outline six tasks performed by a Network Administrator.   (6 marks)

(d)   Describe the following internetworking devices:

      (i)   Repeaters.   (2 marks)

      (ii)   Gateways.   (2 marks)
                                                                                          (Total: 20 marks)

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