KASNEB

DICT LEVEL II

COMPUTER NETWORKING

PILOT PAPER

September 2015.   **Time Allowed: 3 hours.**

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

QUESTION ONE
(a)   Explain what is meant by a "stub network".   (2 marks)

(b)   Evaluate four common factors that could cause LAN traffic congestion.   (8 marks)

(c)   Ann, a network administrator in a well known company wanted to set up computer network in a newly constructed building. She listed a hub switch and a router as some of the network devices that would be required.

        Required:
        (i)   Distinguish between a "hub" and a "switch".   (2 marks)

        (ii)   Explain four functions of a router.   (8 marks)
                                                 (Total: 20 marks)

QUESTION TWO
(a)   Explain four advantages of using OSI Layered model in computer networks.   (8 marks)

(b)   Ethernet networking uses Carrier Sense Multiple Access with Collision Detection (CSMA/CD) a protocol that helps devices share bandwidth every one device at a time.

        (i)   Outline four effects of having a CSMA/CD network sustaining heavy collision.   (4 marks)

        (ii)   Describe what will happen on the Ethernet LAN when a collision occurs.   (8 marks)
                                                   (Total: 20 marks)

QUESTION THREE
(a)   Enumerate four reasons why a fibre optic cable is not preferred in setting up a LAN.   (4 marks)

(b)   Differentiate between the following terms:

        (i)   "Collision domain" and "broadcast domain".   '(2 marks)

        (ii)   A "router" and a "bridge".   (2 marks)

(c)   DHLP provides a lot of information to a host requesting an IP address from the DHCP server.

        Required:
        Explain four other information provided to a host by the DHCP server.   (8 marks)

(d)   Distinguish between "digital" and "analogue" transmission using suitable illustrations.   (4 marks)
                                                   (Total: 20 marks)

QUESTION FOUR
(a)   Explain the following network troubleshooting terms:

        (i)   Tracert.   (2 marks)

        (ii)   Ipconfig.   (2 marks)

(b)   Outline four important things that a network operating system commonly known as internetwork operating system does.

(4 marks)

(c)   With the aid of a diagram, explain how light signals are propagated through a fibre optic cable.

(8 marks)

(d)   Outline four tasks performed by a network administrator.

(4 marks)

(Total: 20 marks)

QUESTION FIVE

(a)   Explain the following mobile network technologies:

      (i)   3G.

(3 marks)

      (ii) H^+.

(3 marks)

      (iii) 4G.

(3 marks)

      (iv)   Hot spot.

(3 marks)

(b)   Describe two network protocols used in presentation layer of the OSI model.

(4 marks)

(c)   Differentiate between a "Personal Area Network" and a "Metropolitan Area Network".

(4 marks)

(Total: 20 marks)

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