11920

3 Hours / 100 Marks   Seat No.

Instructions :
(1) All Questions are *compulsory.*
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Use of Non-programmable Electronic Pocket Calculator is permissible.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   (A)   **Attempt any SIX of the following :**   **6 × 2 = 12**

(a)   State two advantages of standards.

(b)   Define distortion and attenuation w.r.t. errors.

(c)   State two features of Wi-max.

(d)   Name two protocols used in data link layer.

(e)   State two need for internet.

(f)   State the needs for I.P. address.

(g)   Give the speeds of transmission lines T_1 and T_2.

(h)   Compare fast Ethernet and gigabit Ethernet.

(B) **Attempt any TWO of the following :** 2 × 4 = 8

    (a) Define the following :

        (i) Bit rate

        (ii) Baud Rate

        (iii) Bandwidth

        (iv) Data Transmission Rate

    (b) Draw labelled sketch of fibre optic cable showing its construction.

    (c) Compare UDP and TCP. (4 points)

2. **Attempt any FOUR of the following :** 4 × 4 = 16

    (a) Explain Asynchronous, Synchronous Communication.

    (b) Name four standard organizations.

    (c) Compare WAN and LAN on the basis of

        (i) Geographical area

        (ii) Speed

        (iii) Installation Cost

        (iv) Communication medium

    (d) Draw the components of data communication system and state the function of each component.

    (e) Define Protocol. Explain three protocols related to data communication.

    (f) Describe the functions of Hierarchical and Peer-Peer communication.

3. **Attempt any FOUR of the following :** 4 × 4 = 16

   (a) Draw a diagram to illustrate star topology and explain.

   (b) State the function of following network devices :

   (i) Repeater

   (ii) Bridge

   (iii) Router

   (iv) Gateway

   (c) Compare Packet switched network and circuit switched network.

   (d) Explain classes of IP address.

   (e) Explain the architecture of Bluetooth.

   (f) Draw a neat diagram and explain virtual network.

4. **Attempt any FOUR of the following :** 4 × 4 = 16

   (a) Draw TCP/IP reference model. Describe working of any two layers.

   (b) Draw an analog signal with an amplitude of 5V and a frequency of 1 kHz.

   (c) Explain encapsulation.

   (d) Draw the layered architecture of OSI reference model and state the function of each layer.

   (e) Explain data fragmentation and reassembly.

   (f) Explain with diagram the concept of asynchronous TDM.

5. **Attempt any FOUR of the following :** **4 × 4 = 16**

   (a)   State your feature of TCP/IP protocol.

   (b)   Describe dial up network with its specification.

   (c)   Explain working of ICMP.

   (d)   Explain four characteristics of LAN.

   (e)   Explain Distributed Queue Dual Bus (DQDB) with diagram.

   (f)   Explain file transfer protocol with diagram.

6. **Attempt any FOUR of the following :** **4 × 4 = 16**

   (a)   Explain Internal Architecture of ISP.

   (b)   Explain the working of DSL.

   (c)   Explain handoff operation in mobile communication with diagram.

   (d)   Compare FDM and TDM. (4 points)

   (e)   Describe Leased line connection. Give its needs.

   (f)   Compare Guided and unguided media.

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