17662

21819

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)   Assume suitable data, if necessary.

(6)   Use of Non-programmable Electronic Pocket Calculator is permissible.

(7)   Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

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

(a)   State the applications of bluetooth network.

(b)   Describe single bit error and burst error with example.

(c)   Explain the technique called statistical TDM.

(d)   State the different types of fiber cable losses. Explain any one in detail.

(e)   Describe the construction of optical fiber cable.

(f)   Explain the logical process of cyclic Redundancy check computation.

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

   (a) Explain Go-back-n scheme when the frames are lost and the acknowledgement is lost.

   (b) With propagation diagram explain :

   (i) Multimode step index fiber.

   (ii) Multimode graded index fiber.

   (c) Describe the three parts of an IP address.

   (d) Explain any four organizations that standardize data communication.

   (e) Draw the protocol stack of bluetooth.

   (f) Describe the basic categories of errors.

3. **(A)** **Attempt any THREE of the following :** **3 × 4 = 12**

   (a) What are the advantages and disadvantages of optical fibers ?

   (b) Define the following terms :

   (i) Refraction   (ii) Reflection

   (iii) Snell's Law   (iv) Critical angle

   (c) Describe simplex, half duplex & full duplex transmission with example.

   (d) Explain architecture of BSS.

   (B) **Attempt any ONE of the following :** **1 × 6 = 6**

   (a) Explain following ATM cell structures :

   (i) UNI cell header

   (ii) NNI cell header

   (b) Explain construction of Avalanche photo diode in optical detection.

4. **(A)** **Attempt any THREE of the following :** **3 × 4 = 12**

    (a) Compare serial and parallel communication w.r. to

        (i) No. of wires equipped

        (ii) No. of bits transmitted

        (iii) Speed

        (iv) Application

    (b) What is FTP ? How it works ?

    (c) Describe various layers in TCP/IP.

    (d) Explain fields in an ethernet frame header.

(B) **Attempt any ONE of the following :** **1 × 6 = 6**

    (a) Explain the functional diagram of digital communication system.

    (b) Discuss the terms amplitude, period frequency and phase. Also, compare analog signal with digital signal.

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

    (a) What is multiplexing ? Explain frequency division multiplexing.

    (b) Explain Reverse Address Resolution protocol. Why is it equipped ?

    (c) Explain AAL Protocol with layer diagram in ATM.

    (d) Draw the neat sketch of fiber optic communication system.

    (e) Explain significance of Domain Name Service.

    (f) Explain the term asynchronous communication.

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

(a) Describe Vertical Redundancy Check (VRC) mechanism of error detection with example.

(b) Explain the following ICMP messages :

(i) destination unreachable

(ii) source squench

(c) Describe piconet & scaffernet bluetooth architectures.

(d) Explain the concept of parity check with example. What types of errors cannot be detected by this method ?

(e) Describe bandwidth of signal with suitable example.

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