17662

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 FIVE :   **5 × 4 = 20**

(a) What are the different modes of fiber optics cable ? Explain how refractive index affect the modes.

(b) Explain the following terms :

   (i) Amplitude

   (ii) Phase

   (iii) Frequency

   (iv) Period

(c) What do you mean by multiplexing ? State its need and types.

(d) Explain ATM layers in detail with suitable diagram.

(e) What is ICMP ? State its significance.

(f) State the differences between digital and analog transmission (4 points).

(g) What is FTP ? Explain in brief.

P.T.O.

2. **Attempt any TWO :** **2 × 8 = 16**

    (a) Draw and explain the block diagram of digital communication system.

    (b) With proper example explain CRC and sliding window techniques.

    (c) Compare :

    (i) Synchronous and asynchronous communication.

    (ii) Parallel and serial communication

3. **Attempt any TWO :** **2 × 8 = 16**

    (a) With proper block diagram explain optical fiber communication system. What are different light sources and detectors used in optical fiber communication system ?

    (b) Draw and explain MAC layer architecture. Explain in brief DCF & PCF.

    (c) Draw and explain TCP/IP layers in detail.

4. **Attempt any TWO :** **2 × 8 = 16**

    (a) Compare between :
    (i) Simplex and duplex communication model
    (ii) TDM and FDM

    (b) Draw and explain architecturer of IEEE 802.11. What is OFDM ?

    (c) Write short note on :
    (i) SONET
    (ii) SDH

5. **Attempt any TWO :** **2 × 8 = 16**

    (a) What are the different losses in fiber optic cable ? Explain absorption and scattering losses.

    (b) What are line different transmission errors in digital communication ? State the techniques to recover errors. Explain any one technique of error recovery.

    (c) (i) Explain the following terms :
    (1) Data transmission rate
    (2) Bandwidth

    (ii) What is the use of scrambler and unscrambler ?

6. Attempt any TWO : **2 × 8 = 16**

    (a)   State the difference between ARP and RARP protocols.

    (b)   If the message is
$$m(x) = x^7 + x^6 + x^5 + x^2 + x$$
        and $g(x) = x^4 + x^3 + 1$, then find CRC code for transmission.

    (c)   Explain Bluetooth architecture in detail. What is the function of L2CAP.

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