

22322

21819

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.
  - (4) Assume suitable data, if necessary.

**Marks**

**1. Attempt any FIVE of the following :**

**10**

- (a) Define Protocol. State key elements of Protocol.
- (b) List different types of guided media.
- (c) Define line of sight propagation.
- (d) Define multiplexing. List its type.
- (e) Define switching. List its types.
- (f) List any four functions of Data link layer.
- (g) Enlist various IEEE standards for wireless communication. (any four)

**2. Attempt any THREE of the following :**

**12**

- (a) Explain the process of FSK modulation with diagram.
- (b) Explain any four standard organizations.
- (c) Explain propagation modes in fiber optic cable with neat diagram.
- (d) Explain datagram approach for packet switching.

- 3. Attempt any THREE of the following : 12**
- (a) Calculate the baud rate for the given bit rate and type of modulation :
    - (i) 5000 bps, ASK                      (ii) 4000 bps, FSK
  - (b) Explain the construction of Shielded Twisted Pair Cable.
  - (c) Five channels each with 200 kHz bandwidth are multiplexed using FDM. Find minimum bandwidth of the link if guard band of 10 kHz is used.
  - (d) Assuming odd parity, find the parity bit for each of the following data unit :
    - (i) 1011010                              (ii) 0010110
    - (iii) 1001111                             (iv) 1100000
- 4. Attempt any THREE of the following : 12**
- (a) A signal carries five bits in each signal element. If 1600 signal elements are sent per second, find the baud rate and bit rate in kbps.
  - (b) Explain the reason for using different frequency bands for uplink and downlink in satellite communication.
  - (c) Explain the process of asynchronous TDM with example.
  - (d) Explain the process of Checksum with example.
  - (e) In bluetooth communication calculate the length of frame for following scenarios :
    - (i) Three slot                              (ii) Five slotAssume data rate = 1 mbps
- 5. Attempt any TWO of the following : 12**
- (a) Explain Microwave transmission with its advantages and disadvantages.
  - (b) Explain stop and wait ARQ with example.
  - (c) Draw and explain Mobile Telephone System Architecture.
- 6. Attempt any TWO of the following : 12**
- (a) Explain process of synchronous time division multiplexing with its advantages.
  - (b) Explain process of CRC (Cyclic Redundancy Check) with example.
  - (c) Explain DSSS mechanism with neat diagram.
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