



# 22322

11819

3 Hours / 70 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 five** of the following : **10**
  - a) Enlist four standard organizations.
  - b) Draw a labeled diagram of coaxial cable.
  - c) Define line of sight propagation.
  - d) State advantages of multiplexing.
  - e) State advantages of packet switching.
  - f) State any two drawbacks of parity checking for error detection.
  - g) Enlist generations of mobile telephone system.
  
2. Attempt **any three** of the following : **12**
  - a) Compare amplitude modulation and frequency modulation (4 points).
  - b) Explain process of phase shift keying.
  - c) Draw a labeled diagram of fiber optic cable and state its advantages.
  - d) Differentiate between circuit switching and packet switching.
  
3. Attempt **any three** of the following : **12**
  - a) Draw a BFSK waveform to represent the following bit stream 0 1 1 0 1 0.
  - b) Draw and explain block diagram of satellite communication.
  - c) Compare DSSS with FHSS.
  - d) Explain the process of CRC with respect to following example. If  $G(X) = 110010$  and  $M(X) = 101$  then calculate CRC for above stream.

**P.T.O.**



4. Attempt **any three** of the following :

12

- a) Explain the following concept with neat diagram :
  - i) Bit Rate
  - ii) Baud Rate
- b) “In satellite communication different frequency bands are used for uplink and downlink”. Explain.
- c) Explain virtual circuit approach of switching used in computer networks.
- d) Assuming even parity technique find the parity bit for following frames :
  - i) 0000010
  - ii) 1111000
  - iii) 1010101
  - iv) 1011011
- e) Explain the concept of pico net and scatter net of Bluetooth.

5. Attempt **any two** of the following :

12

- a) Differentiate between twisted pair coaxial cable and fiber optic cable (any 4 points).
- b) Explain the following flow and error control techniques :
  - i) Stop and wait
  - ii) Go back N ARQ
- c) Compare first, second, third and fourth generation mobile telephone systems (any 3 points).

6. Attempt **any two** of the following :

12

- a) Explain the following multiplexing techniques with block diagram :
  - i) TDM
  - ii) FDM
- b) Explain the layered architecture of ISO-OSI model along with functions of each layer.
- c) Two channels one with a bit rate of 100 Kbps and another with bit rate of 200 Kbps are to be multiplexed.

Answer the following questions :

- i) Calculate size of frames in bits
  - ii) Calculate the frame rate
  - iii) Calculate the duration of frame.
-