



22322

11819

3 Hours / 70 Marks

Seat No.

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- 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.
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