

22539

24225

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 serial and parallel communication.
- (b) List any two advantages of digital communication system.
- (c) Define Bit rate in communication system.
- (d) State any two strengths of fiber optic system.
- (e) State the basic function of Network layer.
- (f) Define Wi-Fi technology. List any one application of Wi-Fi.
- (g) State the function of Wi-Max technology.

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

**12**

- (a) Draw and explain the block diagram of communication system.
- (b) Describe Sampling Theorem in detail.
- (c) Describe in brief Transmission media. List any four applications of transmission media used for communication.
- (d) Define protocol & explain FTP protocol standards.



- 3. Attempt any THREE of the following : 12**
- (a) Compare AM, FM and PM on the basis of following :
    - (i) Definition
    - (ii) Waveform
    - (iii) Bandwidth
    - (iv) Modulation index
  - (b) Draw the block diagram of PCM and describe the function of each block.
  - (c) Give the comparison between LED and LASER diode. (Any four points)
  - (d) Draw the header format of TCP and UDP protocols.
- 4. Attempt any THREE of the following : 12**
- (a) Explain the working principle of light propagation in fibre optic cable.
  - (b) List and describe the components of optical fibre cable.
  - (c) List the types of fibre optic cable. Explain any one in detail.
  - (d) State the frequency range of guided and unguided media.
  - (e) Draw and explain working principle of LASER diode.
- 5. Attempt any TWO of the following : 12**
- (a) List various error correction techniques & describe any one of error correction technique in communication systems.
  - (b) Compare PAM, PWM & PPM (any 4 points) and also explain why is PPM considered to have better noise immunity than PWM.
  - (c) Draw OSI model and explain function of each layer in brief.
- 6. Attempt any TWO of the following : 12**
- (a) Write the performance parameters as per applications of ASK, PSK and FSK used in data communication. Also state applications of ASK, PSK & FSK. (Any one for each)
  - (b) Write the situation where following light sources and detectors are useful in data communication :
    - (i) LED
    - (ii) LASER diode
    - (iii) Phototransistor
  - (c) Explain Bluetooth topology in detail and list two application areas of Bluetooth communication.
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