# 22336

## 12425 3 Hours / 70 Marks

Seat No.

*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.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

#### Marks

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- 1. Attempt any FIVE of the following :
  - (a) Define Signal to Noise Ratio. Give its unit.
  - (b) List applications of PPM (any two).
  - (c) Classify computer networks based on their scale.
  - (d) Draw RJ-11 pin configuration.
  - (e) State any two benefits of HART Protocol.
  - (f) State any four advantages of Ring Topology.
  - (g) State any two features of Profibus Protocol.

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

- (a) Draw the basic block diagram of communication system. Explain each block in brief.
- (b) Draw the block diagram of FSK with suitable waveforms. Explain it in brief.
- (c) Compare FDM and TDM.
- (d) Draw a sketch to connect four computer in Bus topology and Ring topology.

#### **3.** Attempt any THREE of the following :

(a) Differentiate between BPSK and QPSK modulation techniques.



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- (b) Describe working principle of LED with neat sketch.
- (c) Analyse the advantages of client server model over to peer to peer model.
- (d) Draw the TCP/IP Protocol architecture. State the function of Network layer.

#### 4. Attempt any THREE of the following :

- (a) Illustrate the constructional features of coaxial cable.
- (b) Describe foundation field bus architecture with neat sketch.
- (c) Give standard data rate for Ethernet. State IEEE standard for Ethernet with their brief description.
- (d) Draw pin configuration for RS232. List any four electrical specifications of RS232.
- (e) State any one function of each of following :
  - (i) Hub (ii) Router
  - (iii) Repeater (iv) Gateway

#### 5. Attempt any TWO of the following :

- (a) Encode the binary data 10111011 in unipolar RZ, unipolar NRZ, polar RZ, polar NRZ, Manchester and AMI scheme.
- (b) Draw the seven layered architecture of ISO OSI reference model. State the function of session and application layers.
- (c) Explain with ray diagram, the direction of reflected ray, when
  - (i) Angle of incident < critical angle
  - (ii) Angle of incident = critical angle
  - (iii) Angle of incident > critical angle

Name the principle connected to this.

### 6. Attempt any TWO of the following :

- (a) Describe serial and parallel data transmission with sketch considering data 10111011 for transmission.
- (b) Compare Devicenet layered structure with OSI model. Explain Devicenet layers in brief.
- (c) Differentiate between profibus layered structure with OSI layers. Explain profibus layers in brief.

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