

22539

12425

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) 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) Draw the block diagram of communication system.
- (b) List the strength of digital communication system.
- (c) Define Baud rate and Bit rate.
- (d) Define Snell's law.
- (e) Write the working principle of RS-485 interface.
- (f) List the basic functions of following networking devices :
 - (a) Hub
 - (b) Repeaters
- (g) Write functions of layers of Bluetooth Architecture in short.



- 2. Attempt any THREE of the following : 12**
- (a) Compare AM and FM on the basis of
 - (i) Definition
 - (ii) Waveform
 - (iii) Bandwidth
 - (iv) Modulation index
 - (b) Explain the quantization process.
 - (c) Explain the types of errors in data communication.
 - (d) Explain the working principle of FTP protocol.
- 3. Attempt any THREE of the following : 12**
- (a) Explain in detail synchronous and asynchronous data transmission.
 - (b) Describe ASK principles. Draw ASK modulator and Receiver useful in application.
 - (c) Explain the strength and limitations of fiber optic system.
 - (d) State the RS-232 interface with its advantages and disadvantages.
- 4. Attempt any THREE of the following : 12**
- (a) Explain the construction of optocoupler with proper diagram.
 - (b) Differentiate between twisted pair cables UTP and STP with respect to following factors :
 - (i) Bandwidth capacity
 - (ii) Node capacity
 - (iii) Attenuation
 - (iv) Cost
 - (c) Draw and explain the working principle of laser diode.
 - (d) List the applications of microwave and infrared communication.
 - (e) Explain the working principle of (i) Star (ii) Ring (iii) Bus (iv) Mesh topologies with neat diagram.

5. Attempt any TWO of the following : 12

- (a) Compare ASK, FSK, PSK on the basis of (i) Waveform (ii) Variable parameters (iii) Noise Immunity (iv) Bandwidth requirement
- (b) Explain the generation of PPM signal from PWM with neat block diagram and list the advantages and disadvantages of PPM.
- (c) Draw the OSI reference model and enlist the functions of each layer.

6. Attempt any TWO of the following : 12

- (a) Draw and explain the working principle of PCM with neat block diagram.
 - (b) Compare step index with graded index fiber on the basis of
 - (i) Core radius
 - (ii) Light source
 - (iii) Index profile diagram
 - (iv) Intermodal dispersion
 - (c) Explain USB architecture and state different four applications where USB can be used.
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