17438

11718

3 Hours / 100 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) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. (A) Attempt any SIX from following : **12**

(a) What is need of modulation ?

(b) State working principle of FSK.

(c) How quantization noise is reduced ?

(d) State any two applications of TDM.

(e) Define Azimuth angle & elevation angle related to satellite.

(f) Why communication satellite is called geostationary satellite ?

(g) What is handoff ?

(h) Compare synchronous & asynchronous data transmission.

(B) Attempt any TWO from following : **8**

(a) Draw architecture of OSI model. State functions of any two layers.

(b) How cell splitting takes place in mobile communication ? Explain with neat diagram.

(c) Represent the data 10101101 using following encoding techniques :

(i) Unipolar NRZ

(ii) Polar RZ

(iii) Polar NRZ

(iv) AMI

2. Attempt any FOUR from following : **16**

(a) In FM, if the maximum deviation is 75 kHz & maximum modulating frequency is 10 kHz, calculate deviation ratio & BW of FM.

(b) Define modulation index for AM & draw waveforms for m = 1, m < 1 & m > 1.

(c) Explain how amplitude demodulation is done using diode detector.

(d) What is sampling theorem ? Explain flat top sampling technique.

(e) Explain generation of ASK signal. State it's bandwidth & applications. (any two)

(f) With neat block diagram, explain the working of PCM.

3. Attempt any FOUR from following : **16**

(a) Compare AM, FM & PM with respect to waveforms, bandwidth, MI & frequency spectrum.

(b) Explain generation of PWM along with waveforms.

(c) What is Nyquist rate ? State it's importance.

(d) Describe working principle of FSK along with it's block diagram & waveform. State any two applications of FSK.

(e) Explain procedure for mobile (cellular) to wireline (PSTN) call processing.

(f) Draw & explain working of single channel biotelemetry.

4. Attempt any FOUR from following : **16**

(a) What is frequency reuse ? When interference occur in frequency reuse system ?

(b) Explain working of communication system along with block diagram.

(c) Where following Network devices are used ?

(i) Hub

(ii) Repeater

(iii) Bridge

(iv) Router

(d) State different types of network topologies. Which network topology is used in WAN; explain.

(e) What is the concept of telemedicine in India ?

(f) Explain ethical & legal aspects of internet medical services.

5. Attempt any FOUR from following : **16**

(a) Describe the uplink model used by satellite communication with neat diagram.

(b) How Network security is implemented with message authentication & digital signature ?

(c) Draw architecture of TCP/IP model. Why TCP/IP is used in network system instead of OSI ?

(d) List modes of data transmission. Which data transmission is used for long distance ? Why ?

(e) With neat diagram, explain the working of tele-cardiology.

P.T.O.

(f) Compare LAN & MAN with respect to :

(i) Geographical area

(ii) Transmission media

(iii) Speed

(iv) Application.

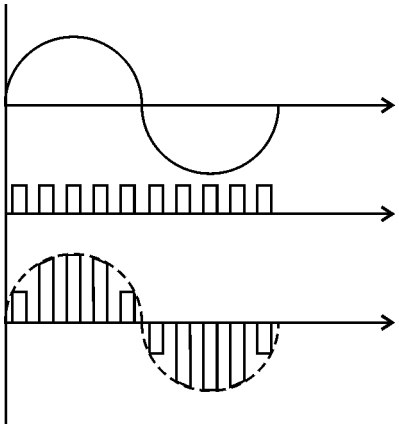
6. Attempt any FOUR from following : **16**

(a) Compare TDMA & CDMA. (any 4 pt)

(b) State need of transponder & explain it's operation.

(c) Define uplink & downlink frequencies used in satellite. List the frequency band used in satellite.

(d)



(i) Identify above waveforms

(ii) Explain the process of generation.

(e) How delta modulation transmitter works ? State it's advantages & disadvantages.

(f) Draw ASK & FSK waveform for a given bit sequence 10011011. State advantages & disadvantages of FSK.
