17438

11920

3 Hours / 100 Marks Seat No. | | | | | | | | |

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.

(8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

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

(a) Define the terms :

(i) Bandwidth

(ii) Information capacity

(b) Draw uplink and downlink model. Mention uplink and downlink frequencies used in satellite.

(c) List any four network connecting devices.

(d) State advantages and disadvantages of PCM (2 points each).

(e) State any two applications of TDM.

(f) Define cell sectoring.

(g) State handoff procedure.

(h) State the function of transponder in satellite communication.

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

(a) State and describe distortions observed in delta modulation system.

(b) Describe cell splitting in mobile communication. Explain with neat diagram.

(c) Explain network topology. List types of network topology.

2. Attempt any FOUR from following : **4 × 4 = 16**

(a) In FM if the maximum deviation is 7.5 kHz and maximum modulating frequency is 10 kHz, calculate deviation ratio and BW of FM.

(b) State sampling theorem. Explain flat top sampling technique.

(c) Draw R2, NR2 format for data 11000010.

(d) Draw ASK, FSK, PSK signals for data 10100101.

(e) A 400 watt carrier is modulated to a depth of 75%. Calculate the total power in modulated wave.

(f) Explain PWM generation with its waveform.

3. Attempt any FOUR from following : **4 × 4 = 16**

(a) Compare PWM and PPM on the basis of following parameters :

(i) Definition

(ii) Bandwidth

(iii) Transmitted power

(iv) Output waveform

(b) Draw a circuit for varactor diode modulator and explain it.

(c) Explain cellular telephone call processing from land line to mobile and vice-versa.

(d) What is DPSK ? State its principle. Draw the block diagram to generate DPSK.

(e) Draw AM waveform for under modulation, over modulation and 100% modulation.

(f) Draw and explain block diagram of single channel biotelemetry system.

4. Attempt any FOUR from following : 4 × 4 = 16

(a) Explain cell splitting and frequency reuse.

(b) Explain adjacent channel and co-channel interference.

(c) Explain the principle of operation of hubs, repeaters, bridges and routers.

(d) Describe network security. Explain with example.

(e) Explain telemedicine in India.

(f) Draw and explain block diagram of telecardiology.

5. Attempt any FOUR from following : 4 × 4 = 16

(a) Draw architecture of OSI and TCP/IP model. Why TCP/IP is preferred in N/W system ?

(b) Explain various modes of data transmission.

(c) Compare LAN and WAN (any four points).

(d) Draw block diagram of satellite communication system and explain it.

(e) Draw neat diagrams of BUS, Star, Ring and Mesh topology.

(f) Explain internet based medical service.

P.T.O.

6. Attempt any FOUR from following : **4 × 4 = 16**

(a) Describe the need of multiplexing list types of multiplexing.

(b) Describe the generation of BFSK with block diagram.

(c) Explain delta modulation technique.

(d) State different types of satellite orbits. Explain (i) elevation angle (ii) Azimuth angle.

(e) Explain station keeping and altitude control related to satellite.

(f) Explain geostationary satellite communication with suitable diagram.
