12185

21112

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.

Marks

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

(a) Draw neat block diagram of communication system. State function of each block.

(b) What is polarization ? State different types of polarization.

(c) Define Nyquist rate. What is aliasing ?

(d) What is multiplexing ? State different types of multiplexing used.

(B) Attempt any ONE : **6**

(a) Draw neat block diagram of AM transmitter. Describe function of each block.

(b) Describe polar, circular, polar equatorial, elliptical orbit of satellite. What is geostationary orbit ?

2. Attempt any FOUR : **16**

(a) Describe with neat diagram duct propagation.

(b) Draw neat block diagram of delta modulator and demodulator.

(c) What is digital to digital conversion ? State different types of polar encoding.

(d) Describe telemetry and control sub-system of satellite.

(e) Describe analog switched service with neat diagram.

(f) State band of frequency allocated for mobile phone. State its application.

3. Attempt any FOUR : **16**

(a) Compare between pulse modulation and CW modulation. (any 4 points)

(b) Name and describe antenna used in satellite communication.

(c) Define following terms :

(i) Data rate (ii) Baud rate

(iii) Channel capacity (iv) Bit rate

(d) Draw neat block diagram of ASK generator. State bandwidth requirement of it.

(e) Describe concept of frequency reuse.

4. (A) Attempt any THREE : **12**

(a) State call processing steps in cellular system.

(b) With neat diagram describe principle of FDM.

(c) Define FM. State ideal and practical bandwidth requirement of FM.

(d) Describe ground wave propagation. State its application.

(B) Attempt any ONE : **6**

(a) Describe PCM transmitter with the help of neat diagram. What is quantization error ?

(b) Draw neat block diagram of cellular system and describe each block.

5. Attempt any FOUR : **16**

(a) Draw block diagram of BPSK transmitter. State two advantages of it.

(b) Find percentage modulation when E_{max} = 132 Vpp & E_{min} = 28 Vpp

Draw AM waveform.

(c) Compare PPM and PWM w.r.t.

(i) Bandwidth (ii) Transmitted power

(iii) Variable parameter of carrier (iv) Output waveform

(d) Draw frequency spectrum of AM. State two advantages of FM over AM.

(e) Compare between AM and ASK. (any four points)

(f) Describe B82S coding scheme.

6. Attempt any FOUR : **16**

(a) Define PPM. Describe generation of PPM.

(b) Describe azimuth angle and elevation angle.

(c) With suitable example describe HDB3.

(d) Define fading. State its importance.

(e) Describe analog hierarchy.

———————