314329

12526

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answer 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. Attempt any FIVE of the following: **10**

a) Define baseband signal.

b) State transmission bandwidth.

c) Write the full form of PWM and PPM.

d) List any four applications of digital communication system.

e) Compare ASK and FSK modulation technique.

f) Define modulation and demodulation.

g) Enlist the different types of AM band spectrum.

P.T.O.

Marks

2. Attempt any THREE of the following: **12**

a) State the concept of electromagnetic spectrum with neat diagram.

b) Define M-ary encoding technique state the need of this technique.

c) Draw ASK and PSK signal for 11001011.

d) List the applications and types of telemetry system.

3. Attempt any THREE of the following: **12**

a) State and explain duplex communication.

b) Draw and explain the block diagram of PCM encoder.

c) Compare FSK and PSK. (Any four points)

d) State any two strengths and limitations of TDMA.

4. Attempt any THREE of the following: **12**

a) Explain with block diagram for generation of AM.

b) Explain Delta modulation with block diagram and waveform.

c) Draw and explain the working principle of QAM.

d) State the bandwidth requirements for :–

i) ASK

ii) FSK

iii) PSK

iv) QPSK.

e) Classify different multiplexing techniques. State the need of multiplexing.

5. Attempt any TWO of the following: **12**

a) A sinusoidal waveform of amplitude 5 V and frequency of 2 KHz is applied to FM generator which has a frequency sensitivity of 40 Hz/Volt.

Calculate :–

i) Frequency deviation

ii) Modulation index

iii) Bandwidth.

Marks

b) Explain working principle of CDMA. State advantages of CDMA over TDMA and FDMA.

c) Draw and explain the block diagram of digital communication technique.

6. Attempt any TWO of the following: **12**

a) i) List different types of noise

ii) Define signal to noise ratio and figure of merit.

b) Draw neat waveforms for PAM, PWM and PPM.

c) Compare AM and FM on the basis of :–

i) Constant parameter

ii) Number of side bands

iii) Bandwidth

iv) Noise

v) Efficiency

vi) Application.