End Semester Examination, 2022

Semester - VI

Physics

PAPER - DSE3T

Full Marks : 40

Time : 2 Hours

Group - A

1. *Answer any five out of eight questions :5x2=10*

a) State sampling theorem.   2

b) What is PSTN ?   2

c) Explain LAN and WAN.   2

d) Explain CDMA technology.   2

e) Give block diagram of Transmitter in satellite communication.   2

f) What is modulation index in amplitude modulation?

g) Write the advantages of geostationary satellite.

h) What is PCM in digital modulation ?

Group - B

Answer any four out of six questions :   4x5=20

2. Discuss ASK, FSK and PSK.   5

3. What do you know by uplink and downlink frequency spectrum ? Discuss PWM technique. 3+2

4. What are the differences between continuous wave and pulse analog modulation techniques ? Explain energy and power signal.   3+2

5. A sinusoidal carrier voltage of frequency 1 mc/s is modulated by a sinusoidal voltage of frequency 5 kc/s. Calculate frequency of USB and LSB. Explain the term : DSB/SC in AM wave.   3+2

6. Derive the frequency spectrum in amplitude modulated wave. Define the term TDM.   4+1

7. What is cell sectoring ? Explain its advantages and disadvantages.   2+3

Group - C

Answer any <u>one</u> out of two questions : 1x10=10

8. Discuss different types of noise in communication system. What is S/N ratio ? What is shannon's law ? What are GEO, MEO and LEO satellites ?

   2+2+2+4

9. An FM transmitter sends out a 100 MHz carrier wave of frequency modulated by 15 KHz audio signal. The maximum frequency deviation is 30 KHz. Find the modulation index.

Explain with block diagram, the process of generation of PAM signal. What is FDM ?   3+5+2