Q.P. Code :26508

[Time: 3 Hours] **[Marks:80]**

Please check whether you have got the right question paper.

N.B: 1) Question 1 is compulsory and Solve any three from the remaining five questions
2) Assume suitable data if necessary.
3) Figures to the right indicate full marks.

Q.1 Answer any **four** questions from the following: 20

a) Explain the advantages and disadvantages of TRF receiver.

b) What is multiplexing? Compare TDM with FDM.

c) Discuss the need for modulation in wireless communication system.

d) What is AGC? Why is AGC needed in super heterodyne receivers?

e) Compare AM and FM.

Q.2 a) With a neat circuit diagram and waveforms, explain the working of envelope detector. What are its merits and demerits? 04

b) A sinusoidal carrier has amplitude of 10v and frequency 30 KHz is amplitude modulated by a sinusoidal voltage of amplitude 3v and frequency 1 KHz. Modulated voltage is developed across a 50 Ω resistance. i) Write the equation for modulated wave and draw the modulated wave indicating Vmax, Vmin **ii)** Determine modulation Index. And calculate total power in the modulated wave **iv)** Draw the spectrum of modulated wave. 06

c) Explain anyone type of SSB generation and detection with neat diagrams 10

Q.3 a) With the help of a neat circuit diagram, explain the working of Foster Seeley discriminator. What is its disadvantage? 10

b) With a neat block diagram ,discuss the working of Linear Delta modulation, its advantages and disadvantages. 10

Q.4 a) With a neat block diagram, explain the function of each block of Super heterodyne AM receiver. 10

b) State Sampling theorem. Explain the two sampling techniques. What is aliasing error? How is it overcome? 10

Q.5 a) Explain the terms with reference to Radio receivers: Selectivity, Sensitivity, Fidelity and Double spotting 10

b) Discuss the generation and demodulation of PWM signal. For a sinusoidal modulating signal, draw PPM, and PWM pulses 10

Q.6 Write short notes on any **four:**

a) FM wave generation using Armstrong method
b) ISB Transmission
c) Pre emphasis and De emphasis circuits with waveforms
d) Skywave Propagation
e) Noise triangle

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