

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 50Ω resistance. i) Write the equation for modulated wave and draw the modulated wave indicating V_{max} , V_{min} 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
