

Please check whether you have got the right question paper.

- N.B:**
1. Question No 1 is compulsory
 2. Attempt any three out of remaining five questions.
 3. Figures to right indicate full marks.
 4. Assume suitable data wherever necessary.

Q1) Attempt any four: (20m)

- a) Types of AGC.
- b) What is modulation and its advantages?
- c) Distinguish between AM and FM.
- d) What are drawbacks of delta modulation? How are they overcome?
- e) Types of Noise.

Q2) a) A modulating signal $10 \sin(2\pi \cdot 1\text{KHz})$ is used to modulate a carrier signal $20 \sin(2\pi \cdot 100\text{KHz})$. Find the modulation index, sideband components, bandwidth, transmission efficiency and sideband powers for $R=50$ ohms. (10m)

b) Explain PWM modulation and demodulation. (10m)

Q3) a) What is DSBSC wave? How to generate DSBSC wave? (10m)

b) Superheterodyne radio receiver with waveforms at each stage. (10m)

Q4) a) Explain Foster Seeley discriminator with its drawback. (10m)

b) Explain low pass sampling theorem. (10m)

Q5) a) Explain Indirect Method of FM generation with a block diagram and phasor diagrams. (10m)

b) Explain PCM modulation and demodulation. (10m)

Q6) Attempt any four: (20m)

- a) Noise Triangle.
- b) Explain TDM.
- c) Explain ASK, FSK and PSK.
- d) Phase shift method for SSB generation.
- e) Derive expression for AM. Also plot the frequency spectrum