

(Library)

Principles of Communication Engineering

Con-2379 -07.

ND-9587

(REVISED COURSE)

(3 Hours)

[Total Marks : 100

- N.B.**(1) Question No. 1 is **compulsory**.
 (2) Solve any **four** from remaining questions.
 (3) Assume suitable data, if **required**.

1. Answer any **four** :— 20
- Define : (i) Noise Factor (ii) Noise Figure.
 - Compare Low level and high level Modulation.
 - With the help of diagram explain quantization.
 - What is tracking error ? Explain three point tracking in Am radio receiver.
 - Explain FM noise triangle.
2. (a) Classify and explain different types of noise affecting communication. 10
 (b) State advantages of SSB over DSB. Explain phase shift method to generate SSB AM. 10
3. (a) An audio frequency signal $10 \sin 2\pi \times 500 t$ is used to amplitude modulate a carrier of $50 \sin 2\pi \times 10^5 t$ Calculate : 10
- Modulation index
 - Sideband frequencies
 - Amplitude of each sideband frequencies
 - Bandwidth required
 - Total power delivered to the load of 600Ω .
- (b) With a neat circuit diagram, explain varactor diode FM modulator. 10
4. (a) If a FM wave is represented by the equation : $V = 10 \sin (8 \times 10^8 + 4 \sin 1000 t)$. 10
 Calculate :
- Carrier frequency
 - Modulating frequency
 - Modulation index
 - Maximum deviation
 - Bandwidth.
- (b) Explain the following with reference to radio receivers : 10
- Selectivity
 - Fidelity
 - Sensitivity
 - Double spotting.
5. (a) State and prove sampling theorem. 10
 (b) Explain generation and demodulation of PPM signal with the help of suitable diagram. 10
6. (a) Draw differential pulse code modulation block diagram and explain its operation. 10
 (b) With the help of neat block diagram explain the working of adaptive delta modulation. 10
7. (a) Write notes on TDM and FDM. 10
 (b) Explain ISB with neat block diagram. 10