

Time: 3 Hours

Max. Marks: 80

N.B.

1. Question No.1 is Compulsory.
2. From Remaining 5 Questions You are Required to Solve any 3 Questions.
3. Assume the data if Necessary.

- 1 Attempt Any Four: - 20
 - a) Draw Block Diagram of Analog Communication System and list its Applications.
 - b) Explain image frequency in super heterodyne receiver.
 - c) Define Fourier Transform with its properties-time and frequency shifting.
 - d) Differentiate Between Amplitude Modulation and Frequency Modulation.
 - e) Explain Need of modulation in communication.
- 2 Attempt the Following: 20
 - a) Explain in detail different Types of Noise with example.
 - b) Draw and explain Electromagnetic Spectrum with its Application
- 3 Attempt the Following: 20
 - a) Draw block diagram of Super heterodyne receiver & explain its characteristics- Sensitivity, Selectivity, Fidelity and double spotting.
 - b) Explain block diagram and waveforms of Armstrong method.
- 4 Attempt the Following: 20
 - a) Draw and explain in detail FM demodulator: Foster Seeley discriminator.
 - b) State and Explain Friss formula and define Equivalent noise temperature.
- 5 Attempt the Following: 20
 - a) Explain in detail Principle of FM with waveforms, spectrum and bandwidth.
 - b) Derive expression of AM wave with necessary sketch.
- 6 Attempt the Following (any four) 20
 - a) Compare Analog Communication system and Digital Communication System.
 - b) Explain Generation of SSB using Phase Shift Method.
 - c) What are the different Types of Communication channels, explain with applications?
 - d) Discuss Signal to noise ratio, unit step, delta and gate function of Fourier Transform.
 - e) Compare Pre- emphasis and de-emphasis in FM generation.
 - f) Draw AM Transmitter and AM Receiver Block diagrams.