

S.E (E) sem IV (R)

Communications Engg-I

11/11/17

Con/2347-07.

(REVISED COURSE)
(3 Hours)

ND-9383
[Total Marks : 100]

MA-2017

- N.B. : (1) Question No. 1 is compulsory.
 (2) Attempt any four questions from the remaining six questions.
 (3) Figures to the right indicate full marks.

1. (a) Draw the block diagram of super heterodyne AM receiver and explain function of each block. 12
 (b) Explain with examples any two properties of Fourier transform. 8
2. (a) Sketch the block diagram of Delta modulation transmitter. Explain the following with appropriate waveforms. 10
 (i) Slope overload error
 (ii) Hunting error.
 (b) Explain the circuit of Foster Seely Discriminator with the help of a neat circuit diagram and phasor diagram. 10
3. (a) An amplitude modulated waveform has the form 10
 $X_c(t) = 10 (1 + 0.5 \cos 2000\pi t + 0.5 \cos 4000\pi t) \cos 20,000\pi t$
 (i) Sketch the amplitude spectrum of $X_c(t)$
 (ii) Find the average power content of each spectral component including the carrier.
 (b) Sketch the block diagram of PCM system with compander and explain its working. 6
 (c) What is quantization noise ? 4
4. (a) Draw the block diagrams of Low level modulation and High level modulation and differentiate between the two. 10
 (b) Classify noise in communication system used in radio-wave propagation and explain in brief. 6
 (c) With suitable waveform explain inter modulation distortion. 4
5. (a) Explain in brief grounded and ungrounded antenna. 8
 (b) What are 'tracking' and 'alignment' in communication receivers ? 8
 (c) Why is the over modulation in AM system undesirable ? 4
6. (a) State and explain the Sampling theorem. 6
 (b) What is a double conversion communications receiver ? State its advantages. 6
 (c) Explain any two single sideband amplitude modulated systems. 8
7. Write short notes on (any three) : 20
 (a) Pre-emphasis and de-emphasis
 (b) Noise triangle
 (c) Methods of AGC
 (d) Armstrong method of FM generation
 (e) Time division Multiplexing.
