Principles of Communication Engg. T.E- Biomed / Elex / PCE. V

May 2015 (13) 13/05/15

Q.P. Code : 3344

(3 Hours) [Total Marks :80

N.B. : (1) Question No.1 is compulsory.
(2) Attempt any four out of the remaining questions.
(3) Assume suitable data in necessary.
(4) Figures to the right indicate full marks.

1. Attempt any four:- 20
   (a) Noise triangle
   (b) Difference in AM and FM
   (c) TDM
   (d) Types of noise
   (e) PCM modulation.

2. (a) Explain super hetrodyne radio receiver with waveforms at every stage. 10
   (b) A carrier wave Vc = 15sin ($2\pi \times 25 \times 10^3 t$) is amplitude modulated by an audio signal Vm = 3sin ($2\pi \times 3 \times 10^3 t$). Modulated voltage is developed across a 50 Ω load. 10
   (i) Write expression for modulated wave.
   (ii) Determine modulation index.
   (iii) Draw frequency spectrum.
   (iv) Find total power and sideband power
   (v) How much power is saved if SSB-SC is generated,
   (vi) find B.W.

3. (a) Generate DSB-SC using balanced modulator with FET's 10
   (b) Generate SSB by phase shift method. 10

4. (a) Explain indirect method of FM generation. 10
   (b) Write about delta modulation and problems associated with it. 10

5. (a) Explain Foster-Seeley detector for FM.
   (b) Explain PWM modulation and demodulation with waveforms. 10 10

6. (a) Write about BPSK, ASK and FSK.
   (b) Explain low pass sampling theorem. 10 10

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