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Also, derive relationship between them. 7

(c) Explain De-emphasis circuit used for improvement in threshold value. CSVTUonline.com 7

(d) Derive a expression for noise figure in DSB-AM system. 7

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B. E. (Fifth Semester) Examination,
April-May 2016

(Old Scheme)

(Et&T Engg. Branch)

COMMUNICATION SYSTEM-I

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) of each question is compulsory. Attempt any two parts from (b), (c) & (d) of each questions.

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Unit-I

1. (a) Discuss the importance of power spectral density in communication system. 2

(b) Explain with suitable example how normalized power is determined in a Fourier transform. 7

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- (c) Determine fourier transform of $\sin \omega_c t$ where $\omega_c = 2\pi f_0$. Also draw amplitude spectrum of the transformed signal. CSVTUonline.com 7
- (d) Define and differentiate between Auto co-relation and cross co-relation. 7

Unit-II

2. (a) Define amplitude modulation. Also write the expression of AM wave. 2
- (b) Assume any auxiliary modulating signal and a carrier signal; and explain amplitude modulation with suitable waveforms of modulated signal, carrier signal and modulating signal. 7
- (c) Explain basic circuit of balanced modulator with suitable diagram. CSVTUonline.com 7
- (d) What do you mean by demodulation? Explain with diagram square-law demodulator. no: 7

Unit-III

3. (a) Define 2
- (i) Bandwidth of FM signal
- (ii) Modulation index in FM

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- (b) Explain armstrong modulation system with the help of block diagram. 7
- (c) Draw and explain Phaser Diagram of NBFM. 7
- (d) Explain importance of de-emphasis and pre-emphasis filtering with example. 7

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Unit-IV

4. (a) What is image frequency? Discuss the role of image frequency in superheterodyne receiver? 2
- (b) What makes a modulator as low level or high level? Explain with block diagram high level AM transmitter. 7
- (c) Explain with block diagram stereophonic FM transmitter. CSVTUonline.com 7
- (d) Explain with block diagram working principle of superheterodyne receiver. 7

Unit-V

5. (a) Write various sources of noise in a communication system.
- (b) Define :
- (i) Noise figure
- (ii) Noise temperature