

Code No: R22041

R10**SET - 1****II B. Tech II Semester Supplementary Examinations, November-2017****ANALOG COMMUNICATIONS**

(Electronics and Communications Engineering)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** QuestionsAll Questions carry **Equal** Marks

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1. a) Define multiplexing. Draw the block diagram of the process of FDM and explain. (8M)  
b) What is frequency division multiplexing? Draw the block diagram and explain (7M)
2. a) Prove that the balanced modulator produces an output consisting of sidebands only with the carrier removed. (8M)  
b) What is the effect of frequency and phase error in demodulation of DSB-SC wave using synchronous detector. (7M)
3. a) How the frequency discrimination method for generating an SSB modulated wave is used? (8M)  
b) Explain the envelope detection of a VSB wave pulse carrier (7M)
4. a) Explain the generation of FM using reactance modulator with a neat circuit diagram (8M)  
b) What are zero crossing detectors? Explain how it works and can be used as an FM demodulator (7M)
5. a) Prove that the figure of merit for SSB-SC is 1. (8M)  
b) Draw the pre emphasis circuit and explain the operation with a neat graph. (7M)
6. a) With block diagram, explain the working of phase modulated FM transmitter. (8M)  
b) Discuss the effect of feedback on the performance of AM transmitter. (7M)
7. a) Draw the block diagram of superhetrodyne receiver and the function of each block. (8M)  
b) What is AGC? Explain different types of AGC. (7M)
8. a) Explain the process of demodulation of PPM (8M)  
b) Plot the spectrum of PAM wave produced by the modulating signal  $m(t) = A_m \cos(2\pi f_m t)$ . Assuming the modulating signal frequency  $f_m = 0.25$  Hz. Sampling period  $T_s = 1$  second and pulse duration  $T = 0.45$  seconds. (7M)