

Roll No .....

**EC-4004 (CBGS)****B.E. IV Semester**

Examination, May 2018

**Choice Based Grading System (CBGS)****Communication Systems***Time : Three Hours**Maximum Marks : 70*

- Note:** i) Attempt any five questions.  
ii) All questions carry equal marks.

1. a) Determine Fourier transform of impulse function. 7  
b) State and prove the time convolution theorem. 7
2. a) State and prove the time shifting property and frequency shifting property of Fourier transform. 7  
b) Give a comparison between AM, DSB-SC, SSB-SC and VSB-SC. 7
3. a) Give a comparison between Amplitude Modulation and Frequency Modulation. 7  
b) An AM broadcast transmitter radiates 20 kW when the modulation index is 75%. Calculate 7  
i) How much of this carrier power.  
ii) Power of each sidebands.

4. a) What is the need for modulation in communication system? 7  
b) Explain synchronous detection of DSB-SC signal with a neat diagram. 7
5. a) Explain the working principle of super heterodyne receiver. 7  
b) Discuss about the noise in AM. 7
6. a) Explain the generation of narrow band FM with neat diagram. 7  
b) Explain the Pre-emphasis and De-emphasis circuit with a neat diagram. 7
7. a) Draw and explain the block diagram of FM receiver. 7  
b) Define AGC? Explain a simple AGC circuit diagram. 7
8. Write short notes on (any three): 14  
a) Noise figure  
b) Noise temperature  
c) Noise bandwidth  
d) Image signal rejection  
e) IF frequency

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