

**II B.Tech II Semester Supplementary Examinations,  
November/December 2005  
COMMUNICATION ENGINEERING  
(Bio-Medical Engineering)**

**Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

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1. (a) Explain with a neat circuit diagram, balanced modulator method of generating an AM-DSC signal.  
(b) Explain the working principle of square law detector method of AM demodulation. [8+8]
2. (a) Explain clearly the difference between Amplitude, Frequency, and Phase modulations, beginning with the definition of each type and the meaning of the modulation index in each case.  
(b) Explain with the block diagram the Armstrong method of FM generation. [8+8]
3. (a) An AM transmitter of 1KW power is fully modulated. Calculate the power transmitted if it is transmitted as SSB.  
(b) Calculate the filter requirement to convert DSB signal to SSB signal, given that the two side bands are separated by 200 HZ. The suppressed carrier is 29 MHz.  
(c) Give and explain three areas of application where standard FM transmission is needed? [4+6+6]
4. (a) Differentiate between simple, delayed and amplified AGC and explain their action with the help of simple circuit blocks.  
(b) Discuss briefly similarities and differences between FM and AM receivers.  
(c) Write in detail about the limiter used in FM receiver. [6+6+4]
5. (a) Define noise figure of a system. Obtain an expression for the equivalent noise of 2 cascaded stages. Deduce therefrom the requisite specifications of a good R.F. Amplifier.  
(b) Two resistors of  $1000\Omega$  each are at temperatures of  $300^{\circ}K$  and  $400^{\circ}K$  respectively. Find the voltage power spectral density at the terminals formed by
  - i. a series
  - ii. Parallel combination of these resistors. [8+8]
6. (a) Discuss the basic problems involved in the design of digital multiplexer.  
(b) Draw the functional model of pass band data transmission system and explain. [6+10]

7. (a) Explain about Pulse-code Modulation is? Draw one complete cycle of some irregular waveform and show how it is quantized, using eight standard levels.  
(b) Explain about different forms of quantization errors in delta modulation. [8+8]
8. (a) Explain the two technologies used in time - division switch.  
(b) How is space - division switching is superior to time - division switching?[8+8]

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