Code :RR321004

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III B.Tech II Semester(RR) Supplementary Examinations, April/May 2011
COMMUNICATION ENGINEERING
(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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1. (a) Explain clearly envelop detector one method of demodulation of AM wave.

   (b) A certain transmitter radiates 9KW with the carrier unmodulated and 10.125 KW when the carrier is sinusoidally modulated. Calculate the modulation index and percent of modulation. If another sine wave, corresponding to 40% modulation is transmitted simultaneously, determine the total radiated power.

2. (a) In an Armstrong Modulator the crystal oscillator frequency is 200 KHz. It is desired in order to avoid distortion to limit the maximum angular deviation to ϕ_m =0.2. The system is to accommodate modulation frequencies down to 40Hz. At the output of the modulator the carrier frequency is to be 108 MHz and the frequency deviation 80KHz. Select multiplier and mixer oscillator frequencies to accomplish this.

   (b) Explain the effect of random noise on the output of an FM receiver fitted with amplitude limiter. Develop the concept of noise triangle.

3. (a) Explain the applications of peak clippers and peak limiters on communications.

   (b) Explain SSB transmission with its merits and demerits.

   (c) What is the function of Master oscillator in RF section of a radio transmitter.

4. (a) Draw the block diagram of AM radio receiver and explain the function of each block.

   (b) Explain what is meant by image frequency.
   What are the considerations in the choice of IF in a Superheterodyne receiver?

5. (a) Explain the source of shot noise and get the expression for its power density spectrum.

   (b) The noise figure of an amplifier is 7 db. Calculate the equivalent amplifier noise referred to the input for a bandwidth of 500 MHz.

6. (a) Distinguish between PAM, PWM and PPM.

   (b) What is TDM? Distinguish between synchronous and asynchronous TDM.

7. (a) Draw the block diagram of binary PSK receiver and explain the working principle.

   (b) Write the difference between coherent and non-coherent systems. Give example.

8. (a) What is the difference between a primary and a secondary channel in a modem.

   (b) Compare the mechanism of a space division switch to the mechanism of a time divison switch.

   (c) What is the limiting factor in a cross bar switch? How does a multistage switch alleviate the problem?

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