Code :IC3226

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III B.Tech II Semester(R05) Supplementary Examinations, April/May 2011
COMMUNICATIONS SYSTEMS
(Instrumentation & Control Engineering)
(For students of RR regulation readmitted to III B.Tech II Semester R05)

Time: 3 hours
Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

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1. (a) Explain the concept of Random process.

   (b) Distinguish between stationary and non stationary random process.

2. Explain with neat diagram of Hydraulic Telemetry and explain its main considerations taken using Hydraulic Telemetry System.

3. (a) Explain the method of AM generation using square-law modulator.

   (b) The message signals given by m(t)=20Cos2πt volts and the carrier wave is c(t)=50Cos100πt volts. Find the power developed across a load of 100Ω due to the AM wave with 75% modulation.

4. (a) List the different FM demodulation methods. Describe one method of FM signal demodulation with neat block diagram.

   (b) The equation of an angle modulated voltage is v(t)=10Sin (10^8 t +3sin 10^4 t) what form of angle modulation is this? Calculate the carrier and modulating frequencies.

5. (a) What is aperture effect, How it is Caused? How can you overcome the aperture effect?

   (b) Write about instantaneous sampling?

6. (a) Show that with a non uniform Quantizer, the mean square value of the Quantizing error is approximately equal to $1/12 \Sigma \delta_i^2 \ p_i$, where δ_i is the i_{th} step size P_i is the probability that the input signal amplitude lies with in the i_{th} interval. Assume that the step size S_i is small compared with the excursion of the input signal.

   (b) Determinethe μ law and A law.

7. (a) Differentiate between QAM and PSK.

   (b) Explain about coherent ASK and non coherent ASK.

8. (a) Consider the binary sequence 0100101.Draw the waveforms for the following signaling formats.

   i. Unipolar NRZ signaling format
   ii. Bipolar RZ signaling format
   iii. AMI(Alternate Mark Inversion) RZ signaling format.

   (b) Discuss the advantages and disadvantages of the three signaling formats.

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