Code: 9A04501

R9

B.Tech III Year I Semester (R09) Supplementary Examinations, May 2013

ANALOG COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 (a) What are the benefits of modulation? Explain in detail.
(b) Explain different coding methods used in communication.

2 (a) What is a band pass signal and how it is relevant to communication system.
(b) The antenna current of an AM broad cast transmitter, modulated to a depth of 40 percent by an audio sine wave, is 11 A. It increases to 12 A as result of simultaneous modulation by another audio sine wave. What is the modulation index due to this second sine wave?

3 (a) Describe the demodulation of AM SSB signal using filter method.
(b) A 400 W carrier is amplitude modulated to a depth of 100%. Calculate the total power in case of SSB technique. How much power saving is achieved for SSB compared to AM and DSBSC?

4 (a) Derive the mathematical equation for PM, if carrier and modulating signals are of sinusoidal.
(b) Certain FM system is having maximum frequency deviation of 75 KHz and modulating frequencies are cover from 100 Hz to 15 KHz. Find modulation index and bandwidth.

5 Draw the block diagram of phase shift discriminator and explain the functionality of each block.

6 (a) Discuss about self excited mixer.
(b) In a broadcast super heterodyne receiver having no RF amplifier, the loaded Q of the antenna coupling circuit is 150. If the Intermediate frequency is 455 KHz, calculate:
(i) The image frequency and its rejection ratio at 0.1 MHz.
(ii) The image frequency and its rejection ratio at 25 MHz.

7 (a) Discuss about different sources of noise.
(b) Explain about threshold effect in FM.

8 Draw the block diagram and TDM-PAM signal and explain about it.

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