Code No. 6097 / S

FACULTY OF ENGINEERING

B.E. 3/4 (ECE) I – Semester (Supplementary) Examination, July 2014

Subject : Analog Communications

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part - A. Answer any FIVE questions from Part - B.

PART – A (10 x 2.5 = 25 Marks)

1 Explain the need for modulation.
2 Why quadrature null effect is not serious in SSB as in DSB-SC?
3 Write the time expression for SSB for multitone message signal.
4 Compare FM and PM techniques.
5 Distinguish between high level and low level AM transmitters.
6 Why pre-emphasis and DC-emphasis is required in FM only why not in AM?
7 What are the different sources of noise?
8 Define noise figure and noise band width.
9 Find Nyquist frequency of the signal V(t) = 10 Sa(100t).
10 Why flat-top sampling is required?

PART – B (5 x 10 = 50 Marks)

11 a) Describe generation of SSB signal using phase shift method.
b) What is Hillbert transform? State and prove its properties.

12 Derive the FM equation for single tone modulation plot the spectrum. Comment on its bandwidth.

13 a) Draw the circuit and explain the generation of FM using reactance tube method.
b) In a broadcast superheterodyne receiver having no RF amplifier the loaded Q of the antenna coupling circuits is 50. If the IF is 45skltz. Calculate image frequency and it's rejection ratio.

14 Derive the relation for figure of merit for single tone FM signal.

15 a) Describe various types of sampling processes.
b) Describe generation of PPM signals.

16 a) What is spectral crowding of FM signal.
b) Derive the relation for figure of merit of multi tone AM system.

17 Write short notes on :
a) Shot noise b) Quadrature null effect c) Threshold effect in FM

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