FACULTY OF ENGINEERING

B.E. 3/4 (ECE) I – Semester (Main) Examination, November 2013

Subject : Analog Communication

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. Find the power of signal $V(t) = \cos w_{\ell} t + \cos w_{m} t \cos w_{c} t$.
- 2. Define complex and pre-envelops of the signal.
- 3. FM carrier is given by $s(t) = 3\cos[2\pi . 10^9 t + 4\sin 2\pi . 10^3 t]$ volt. Find band width using Carson's rule.
- 4. Compare phasor diagrams of AM and NBFM.
- 5. Give the classification of radio transmitters.
- 6. List the factors that judge the choice of RF amplifier.
- 7. How do you represent the narrow band noise?
- 8. What is meant by figure of merit in analog communication systems?
- 9. State sampling theorem for band pass signals.
- 10. What is aperture effect in sampling process?

PART – B (5 x 10 = 50 Marks)

- 11.a) Derive an expression for power transmitted form AM signal.
 - b) i) Define Hilbert transform.
 - ii) Find Hilbert transform of impulse signal.
- 12. Explain with appropriate theory and block diagrams the working of an FM demodulator using PLL.
- 13.a) Justify why local oscillator frequency is selected higher than the incoming signal frequency.
 - b) Explain : Amplitude limiter in FM receivers, change of IF and fidelity of a receiver.
- 14. Prove that figure of merit of DSB-SC is superior to AM.
- 15.a) State and prove sampling theorem for low pass signals.
 - b) Draw PAM, PWM and PPM signals for a single tone message signal and explain their generation process.
- 16. How PPM signals can be demodulated? Give the relevant circuit and explain.
- 17. Write short note on :
 - a) Aliasing effect
 - b) Equivalent noise temperature
 - c) Double spotting
