Total No. of Questions : 10] [Total No. of Printed Pages : 3

Roll No. 0502EC081013

EC–405(N)

B. E. (Fourth Semester) EXAMINATION, June, 2011

(Electronics & Communication Engg. Branch)

ANALOG COMMUNICATION

[EC–405(N)]

Time : Three Hours

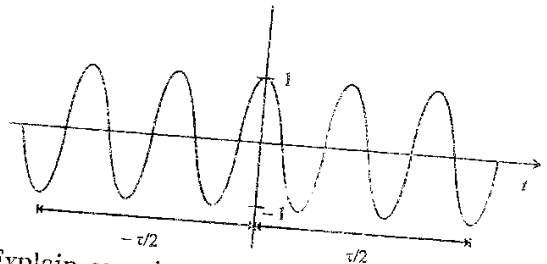
Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt *one* question from each Unit. All questions carry equal marks.

Unit–I

1. (a) Find the Fourier transform of a radiofrequency pulse shown in fig. 15



(b) Explain causal and non-causal system in short. 5

Or

2. (a) Explain Parseval's theorem for energy signals. 10

(b) State and prove the frequency convolution theorem. 10

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Unit – II

3. (a) Draw and explain the working of envelope detector circuit. 10

(b) What is the need of modulation in communication systems ? 10

Or

4. Explain the working of DSB-SC with block diagram, modulated signal and its spectrum. What is the effect of phase and frequency error in synchronous detection, and how we can remove it. 20

Unit – III

5. (a) Derive an expression for an FM signal when a carrier $A \sin \omega_c t$ is being modulated by a signal : 10

(i) $E_m \cos \omega_m t$

(ii) $E_m \sin \omega_m t$

(b) Explain Capture effect in FM transmission. 10

Or

6. (a) Draw and explain the working of PLL detectors. 10

(b) A single tone FM signal is given by :

$$e_{FM} = 10 \sin (16 \pi \times 10^6 t + 20 \sin 2 \pi \times 10^3 t)$$

Find modulation index, modulating frequency, carrier frequency and power of FM signal. 10

Unit – IV

7. Draw the block diagramme of superheterodyne receiver and explain its working, with tracking and alignment process. 20

Or

8. (a) What is AVC and AFC ? What is the impact of AVC and AFC in radiotransmitter ? 12

   (b) Draw and explain AM transmission using low level modulation. 8

Unit – V

9. Write short notes on any *two* of the following : 20

   (i) Noise bandwidth

   (ii) Noise figure

   (iii) Noise temperature

   (iv) Noise in Angle modulation system

Or

10. (a) Explain figure of merit for FM. 10

    (b) Discuss white noise and its power spectrum. Which frequency component does it have ? 10