Code : 104407

2013 (A)

COMMUNICATION SYSTEMS

Time : 3 hours *Full Marks* : 70

Instructions :

(i) All questions carry equal marks.

*(ii) There are **TEN** questions in this paper.*

*(iii) Attempt any **FIVE** questions.*

1. *(a)* Write short notes on continuous-time and discrete-time signals.

   (b) Explain energy spectral density and state all of its properties.

2. State and prove time-convolution and frequency-convolution theorems.

3. Find the Fourier transform of the gate function $x(t) = \text{rect}(t/c)$.

4. Explain square-law diode modulation method for AM generation.

5. *(a)* Explain the difference between narrowband FM and wideband FM.

   (b) What are the merits and limitations of FM?

6. Explain noise figure. Derive an expression to equate noise figure and equivalent noise temperature.

7. State and prove sampling theorem in time domain.

8. Write short notes on the following :

   (a) Line communication (Telegraphy)

   (b) Microwave communication links

9. Explain satellite communication system with suitable diagram.

10. Compare between time division and frequency division multiplexings in detail.

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