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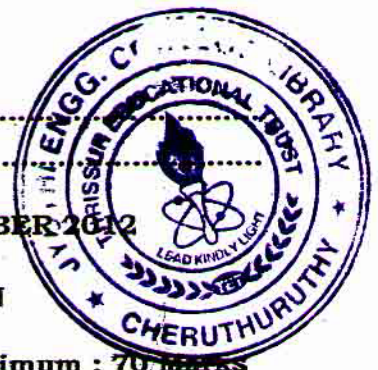Reg. No: ....

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, OCTOBER 2012

EE 09 702 – ANALOG AND DIGITAL COMMUNICATION

Time : Three Hours   Maximum : 70 marks

PART A

Answer all the questions. Each question carries 2 marks

1. What are the merits of FM over AM

2. What is meant by ensemble average

3. Why compander is used in PCM

4. Write the use of Power line modems in power line carrier communication

5. What is the concept of base band data transmission

$(5 * 2 = 10 marks)$

PART B

Answer any Four(4) questions. Each question carries 5 marks

6. What are the line codes used for the electrical representation of a binary data

7. Give the block diagram of an FET transmitter and explain the various blocks

8. What is the use of frequency domain representation of a finite energy signal. Explain with an example

9. Explain the concept of FSK and PSK

10. What is meant by frequency hopping in CDMA

11. Describe the ways of connecting the Power line communication unit to the network

$(4 * 5 = 20 marks)$

PART C

Answer four(4) full questions. Each question carries 10 marks. Missing data may suitably be assumed.

12. (a) Explain the concept and working of tuned radio frequency receiver. What are its drawbacks

    (b) Explain the principle of Single side band transmission. What is its need. What are the merits and demerits

$(5 + 5 = 10 marks)$

OR

    (c) What is the principle of FM detection. How the modulation signal is extracted from the frequency modulated wave. Explain

$(10 marks)$

13. (a) State and prove the properties of Gaussian random process

(10marks)

OR

(b) What is convolution. State and explain convolution theorem

(c) Prove mathematically that the process of uniformly sampling a signal in the time domain results in a periodic spectrum in the frequency domain with a period equal to the sampling rate.

(5 + 5 = 10marks)

14. (a) What are the different types of analog pulse modulation schemes. With necessary waveforms, explain each in detail

(b) Define the term Inter Symbol Interference. What is its significance

(6 + 4 = 10marks)

OR

(c) What is the concept of hopped CDMA. What is its use.Explain Frequency-hopping spread spectrum and time hopping

(d) List four advantages of using CDMA

(6 + 4 = 10marks)

15. (a) What are the applications of Power line carrier communication

(b) Write about the interface equipments and communication standards of power line carrier communication

(4 + 6 = 10marks)

OR

(c) What are the modulation techniques useful for power line carrier communication. Why specialized techniques are required. Explain

(10marks)