(81)

TE-sem-V- CBGS- Electrical CE

7/12/15

QP Code : 5684

(3 Hours) [Total Marks: 80]

Instructions:

1. Question No: 1 is compulsory.
2. Answer any three from the remaining questions.

1 **(5 x 4)**

a) State and prove any two properties of Fourier Transform.

b) Write down the basic principle used in Super heterodyne receivers.

c) Explain the quantization process in PCM.

d) Brief the properties of entropy

2 a) Explain a method of generating a single side band signal using Balanced modulators. **(10)**

b) Explain a method of generation of an Amplitude modulated signal and sketch the time domain waveform of message, carrier and modulated signals. **(10)**

3 a) Give the procedure for Shannon-Fano coding and use the procedure for obtaining the source code for the source symbols S_0, S_1, S_2, S_3, S_4, S_5 with their respective probabilities: 1/2, 1/3, 1/12, 1/15, 1/20, 1/20. Also compute the code efficiency. **(10)**

b) Explain the generation of a Delta modulated signal. State the drawbacks of DM and suggest methods to overcome it. **(10)**

4 a) Briefly discuss on various error control codes and explain in detail the convolution code with one example. **(10)**

b) Draw the block diagram of a PCM communication system. Explain the function of each block with a neat sketch of input and output at each stage. **(10)**

5 a) Explain the working principle of an ASK modulator. **(10)**

b) With a neat block diagram, explain the operation of Armstrong Frequency modulation system. **(10)**

6 **(20)**

Write short notes:

1) Optical Fiber Communication 2) Pre-Emphasis and De-Emphasis.3) Advantages of Digital Communication System

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