

A-405-40
A-406-35

T.E. Electrical V CBGS
Commⁿ Engg

07.12.2015
QP Code : 5684

85

(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

Write short notes:

(20)

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