24042

B. Tech. 3rd Sem. (CSE)

Examination – December, 2015

DIGITAL ANALOG COMMUNICATION

Paper : EE-217-F

Time : Three Hours]   [Maximum Marks : 100

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory*. Attempt any *four* questions from the rest of paper choosing *one* from each Section.

1. Answer the following briefly :   20

    (a) Define Information capacity.

    (b) What is entropy ?

    (c) What is meant by differential pulse modulation ?

    (d) What are the advantages of QPSK modulation ?

    (e) What is the need for error control coding ?

(f) What is Frequency hopping ?

(g) What are the advantage of digital transmission.

(h) What is meant by orthogonal code ?

(i) Draw ASK and PSK waveforms for a datastream 110101.

(j) Draw the frequency spectrum and mention the bandwidth of AM signal.

SECTION – A

2. (a) Distinguish between frequency and phase modulation.   10

   (b) Explain the principle of AM modulation with mathematical analysis. Also draw the AM wave and explain its power distribution.   10

3. (a) Explain the Bandwidth requirements for FM and define Carson's rule.   10

   (b) List the advantages of CDMA over TDMA multiple access system.   10

SECTION – B

4. (a) Describe with neat diagram the operation of QPSK modulator. Draw its constellation and phasor diagram.   10

(b) Explain the bandwidth consideration of QPSK system.   10

5. (a) Discuss in detail the operation of QPSK modulator and demodulator with its phasor diagram.   10

   (b) Write note on quadrature amplitude modulation.   10

SECTION – C

6. (a) What is companding ? What is the need for companding ?   10

   (b) What are the drawbacks of delta modulation ? Explain how it is overcome in adaptive delta modulation ?   10

7. (a) What are the types of sampling ? Explain the operation of sample and hold circuit.   10

   (b) Draw the block diagram and describe the operation of a delta modulator. What are its advantages and disadvantages compared to a PCM circuit.   10

SECTION – D

8. Explain the following :

   (i) Inter symbol interference   7

(ii) Eye pattern   7

(iii) Quantization noise in PCM   6

9. (a) Explain the standard organization for data communication.   10

   (b) Explain error detection and error connection in data communication.   10

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