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B. Tech. (Sem. IV) (Main & Back) Examination, June/July - 2011
Computer & IT
4CS6.1 Analog & Digital Communication Common for CS & IT

Time : **3** Hours] [Total Marks : **80**
[Min. Passing Marks : **24**

*Attempt any **five** questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly). Units of quantities used/calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. Nil 2. Nil

UNIT - I

1 (a) How to demodulate of AM waves by square law detector ? Explain it with suitable ckt diagram. 8

(b) The total power ckt of AM signal is 1000W. Determine the power being transmitted at carrier frequency and at each of sideband when the modulation is 100%. 8

OR

(a) Explain the different methods of generation of SSB signal. 8

(b) Determine the Nyquist rate and Nyquist interval for given signal $x(t) = 6\cos 50\pi t + 20\sin 300\pi t - 10\cos 100\pi t$

8

UNIT - II

2 (a) How is bandwidth calculated in wideband FM if modulating signal has larger number of discrete frequency components.

8

(b) Compare AM, FM and PM.

8

OR

(a) Describe frequency and phase modulation, giving mechanical analogies for each.

8

(b) When the modulating frequency in an FM system is 400 HZ and the modulating voltage is 2.4V, the modulation inden is 60. Calculate the maximum deviation.

8

UNIT - III

3 (a) Explain the delta modulation in detail with suitable diagram.

8

(b) A television signal having a bandwidth of 4.2MHZ is transmitted using binary PCM system. Given that the no. of quantization level is 512. Determine.

(i) Code word length

(ii) Final bit-rate.

4+4

OR

(a) Explain the working of pulse code modulation define the signal to quantization noise ratio in PCM.

8

(b) Determine error probability in PCM system.

8

UNIT - IV

4 (a) Define and describe pulse-position modulation and explain with waveforms how it is derived from PWM. 8

(b) What are the advantages and applications of pulse code modulation ? 8

OR

(a) Explain the types of line coding in brief. 8

(b) What is the fundamental differences b/w pulse modulation on the one hand and frequency and amplitude modulation on the other. 8

UNIT - V

5 (a) Draw the block diagram of QPSK and explain it working. 8

(b) Explain the generation of ASK signal. 8

OR

(a) Explain the generation and detection of MSK signal. 8

(b) Derive the empression for spectrum of BPSK and sketch the same. 8