EC-503

B. E. (Fifth Semester) EXAMINATION, Dec, 2011

DIGITAL COMMUNICATION (EC-503)

Time; Three Hours Maximum Marks 100 Minimum Has Marks: 35

Note : Attempt one question from each All questions cmiiy equal mob

1 IMUuc aaxl explain the following :

(1) Cumulative dblribution function (ii) Probability density function (III) Variance and standard deviation of random variable

(b) An urn contains 4 white and 3 Mack balls. Two balls arc drawn successively with X denoting the number of

(1) Rod the probability fuocboo of X.

(ii)Draw the bar chart and histogram.

Or

2.(a) Define and explain the following :

(i) Correlation and autocorrelation (ii) Cf rUral-limit ihintpm

(iii) Power spectral denoiy of digital data ^

(b) A fair die is tossed 5 times. A ton is oiled a success if face I or 6 appears, find 40 ihc probability of 2 successes, (ii) the mean and uandaid deviation for the number

Laft-ll

Explain natural and .flat up sampling. Compare the

4b) Explain _how PPM nod PWM signals ore generated f (I) from PAM signals and (ii) directly.

Or

4- (a) State and prove Sampling theorem. Also explain

Aliasing effect in derail,

(b) Draw and explain the PAM modulator and

Unit-III

5- toy Explain quantization. What is qanimtiofl error ? How

' does it depend upon the step si/e and how it can be

reduced.

(W- Describe delta modulation systems. What are its limitations ? How can they he overcome ? Or

b- (a) Explain pubc code modulation system in detail. Abo discuss signal to noise ratio in PCM. W Compare PCM. DCPM. delta modulation, adaptive delta modulation in MU of Bandwidth and signal to num.- ratio,

Unit-IV

iii Discuss generation and detection, spectrum and
bandwidth of amplitude shift keying,

(b) What is matched fibers ? Explain. Find its transfer fund ion.

Or

8.(a) Explain frequency shift keying. Describe coherent detection of FSK signals. What should be the relationship between Ml rate and frequency shift for a better performance,

(b) Compare digital modulation techniques on the basb of probability of error ad matched filler.

9.Explain spread spectrum modulation. Discuss generation and characteristics of pn sequences.

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10.Explain any r»o of the following :

(i)Direct sequence spread spectrum system

(ii)Spread spectrum with CDMA

(iii) Frequency hopping spread spectrum