Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ECE)/(ETE) (2011 Onwards)

B.Tech.(Electronics Engg.) (2012 Onwards) (Sem.–5)

DIGITAL COMMUNICATION SYSTEM

Subject Code : BTEC-501

M.Code : 70545

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt ANY TWO questions.

SECTION-A

Q1. Write briefly :

a. What do you mean by Additive White Gaussian Noise?

b. Write the basic difference between delta modulation and Adaptive delta modulation.

c. What is Entropy and Information rate?

d. What is HDB signaling?

e. Draw block diagram of Coherent ASK detector.

f. Discuss noise effect in PCM.

g. What do you mean by EYE diagram?

h. Write advantages of MSK as compared to QPSK.

i. What is Schwarz's inequality?

j. Write Nyquist first criterions for Zero ISI.

SECTION-B

Q2. Write a note on Statistical TDM, Codecs and Combo chips.

Q3. Prove that in BPSK receiver Phase shift θ increases with increase in probability of Error and for the same signal energy and noise spectral density, which of BPSK and BFSK have better error probability, comment on it.

Q4. Write a note on Slope over load distortion and Granular noise.

Q5. A communication signal having a band width of 6.2MHz is transmitted using binary PCM system. Quantization levels are given as 512. Determine:

a) Code Word length

b) Transmission band width

c) Final bit rate

d) Output signal to quantization noise ratio.

Q6. Calculate probability of error for ASK, PSK and FSK schemes.

SECTION-C

Q7. Explain BPSK demodulator circuit. Give Geometrical representation of BPSK signal, Calculate Band Width from frequency Spectrum, write advantages, disadvantages and probability of error of BPSK signal. 10

Q8. Apply the Huffman coding procedure for the following message ensemble

(X) = (X1 X2 X3 X4 X5 X6 X7)

(P) = (0.2 0.4 0.12 0.08 0.06 0.08 0.04) 10

Q9. a) What is power spectral density? State its properties with formula. 6

b) Draw the line code formats for the bit stream 10101101 using 1) Bipolar NRZ 2) Split Phase Manchester 3) Polar RZ 4) Unipolar RZ. 4

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.