

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

Paper ID : [A2103]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS 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 have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Q1) Write briefly :

- a) What is entropy?
- b) What is Inter Symbol Interference?
- c) What is Nyquist's criterion for pulse shaping?
- d) What is QAM? Draw its constellation diagram.
- e) What is Coherent detection? Give any one suitable example.
- f) What is GMSK? Give its one application.
- g) Differentiate TDMA with CDMA.
- h) Why is clock recovery required in a BPSK demodulator circuit?
- i) Differentiate Manchester coding with AMI signaling.
- j) What is PLL? Give any two applications of PLL.

SECTION-B

- Q2) What is digital representation of analog signals? Give advantages and disadvantages of digital communication system.
- Q3) Define channel capacity and plot channel capacity C versus B , with $s/\eta = \text{constant}$, for the Gaussian channel.
- Q4) What is information? One of the five possible messages m_1 to m_5 having probabilities $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, & $\frac{1}{16}$ respectively. Calculate average information.
- Q5) What is fundamental difference between the pulse modulation, on the one hand, and frequency and phase modulation on the other?
- Q6) What is Frequency Shift Keying? Explain FSK bit rate, Baud rate, and Bandwidth and frequency spectra of FSK.

SECTION-C

- Q7) a) Explain with the help of a suitable example, Shannon Fano Source coding.
b) Explain how DPCM improves system performance.
- Q8) a) What is Differential Pulse code modulation? How is it demodulated?
b) Give a detailed comparison between carrier recovery circuits Squaring Loop and Costas Loop.
- Q9) a) Find probability of error for FSK modulation scheme for non coherent type of detection.
b) Draw the block diagram of Non coherent PSK detector and comment on its performance parameters.