2008 ANDHRA UNIVERSITY
B.E/B.TECH DEGREE EXAMINATIONS
DIGITAL COMMUNICATIONS
(ELECTRONICS AND COMMUNICATION ENGINEERING)

TIME: 3 HOUR
MARK: 70

Question No.1 Is Compulsory And Answer Any Other 5 Questions
All Questions Carry Equal Marks

1)Answer all questions

a)what is the necessity of companding in PCM systems?

b)why does slope over load distortion occur in DM?

c)why FSK signalling scheme is inferior to PSK signalling scheme

d)what is a correlation receiver? Give its characteristics?

e)List the characteristics of PN sequences

f)List some applications of spread spectrum systems

g)Give the relationship between processing gain and the number of users in CDMA environment

2)
a)Explain the meaning of base-band in a communication system. With relevant block diagram explain the principle of operation of a base-band binary data transmission system using PAM

b)Give the merits and demerits of PPM aver PAM and PWM. Explain why a single channel PPM system requires the transmission of a synchronizing signal, where as a single channel PAM or PWM system doesnot

3)
a)with neat block schematic diagrams explain Delta Modulation(DM) modulator and demodulator. What are the various problems in DM? How ADM will over come thee problems

b)Derive the expression for output signal to noise ratio in DM system taking into account both channel noise and quantization noise

4)
a)Clearly explain binary FSK coherent and non-coherent signalling schemes with the help of block schematic diagrams

b)What is M-ary signalling ?Discuss its advantages and disadvantages over binary signalling

5)

a)Ex[plain Duo binary encoding and decoding schemes
b)Verify that Duo-binary decoding results in bandwidth reduction during transmission by assuming the message sequence to be transmitted is an alterative '1' and '0' sequence

c)For the data stream 0010110,find the duo-binary decode wave form and give the representation of the data obtained at stages of decoding

6)
a)Explain the important properties of quadrature components of narrow-band noise

b)Describe the various types of noise and their representation in frequency domain

c)The input x(t) to the RC filter shown in figure 1.0 is a wite Guasssion noise. Determine the power spectrum of the output y(t) and also auto correlaion (t) (A diagram is given)

7)
a)Derive an expression for the probability of bit error in a PSK system and in a FSK system and compare their performance

b)Binary data is transmitted over a telephone link with usuable band width of 2400 Hz using FSK signalling scheme. The transmit frequencies are 2025 and 2225 Hz and the data rate is 300 bits/sec. The average signal to noie power ratio at the output of the channel is 6B. Calculate pe for the coherent and non-coherent schemes

8)
a)How are spread spectrum systems different from conventional digital communication systems?

b)With a neat block schematic diagram explain frequency hopping (FH) spread spectrum communication systemsc0Explain CDMA . Distinguish between direct sequence CDMA and frequency Hopped CDMA