R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year II Semester Examinations, October/November-2016
DIGITAL COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A
(25 Marks)

1.a)	Compare PCM and DM.	[2]
b)	Write the advantages of digital communication.	[3]
c)	Define QPSK.	[2]
d)	Draw the block diagram of the PLL.	[3]
e)	Define Baseband transmission.	[2]
f)	Define conditional entropy.	[3]
g)	Mention the properties of cyclic code.	[2]
h)	Write the advantages of convolution codes.	[3]
i)	List out the applications of CDMA.	[2]
j)	Define spread spectrum. List its uses.	[3]

PART - B
(50 Marks)

2.a)	What is Hartley Shannon law? And explain sampling theorem.	
b)	With a neat sketch describe ADPCM concept.	[5+5]
	OR	
3.a)	Explain the tradeoff between bandwidth and signal to noise ratio.	
b)	Distinguish between analog communication and digital communication.	[5+5]
4.a)	Draw and explain the operating principle of ASK Modulator.	
b)	Describe the BPSK modulation technique with the help of a neat diagram.	[5+5]
	OR	
5.a)	Explain the DPSK modulation technique with the help of a neat sketch.	
b)	Explain the working of non-coherent FSK detector.	[5+5]
6.a)	Draw and explain the working of optimum receiver with a neat diagram.	
b)	Define eye diagram. Draw the eye diagram for FSK.	[5+5]
	OR	
7.a)	Explain Huffman coding with an example.	
b)	Explain crosstalk concept.	[5+5]

8.a)   Describe the algebraic structure of cyclic codes.
  b)   Explain how to encode cyclic codes.   [5+5]

<div align="center">**OR**</div>

9.a)   Give the matrix description for linear block codes.
  b)   Decode convolution process using viterbi algorithm.   [5+5]

10.a) What are the characteristics of PN sequences? Explain
  b)   Describe the process of code division multiple access in detail.   [5+5]

<div align="center">**OR**</div>

11.a) Describe with a neat sketch the direct sequence Spread spectrum technique.
  b)   Describe the concept of Ranging using DSSS.   [5+5]

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