#### Code No: 126AN 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

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]

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(25 Marks)

Describe the algebraic structure of cyclic codes.	
Explain how to encode cyclic codes.	[5+5]
OR	
Give the matrix description for linear block codes.	
Decode convolution process using viterbi algorithm.	[5+5]
What are the characteristics of PN sequences? Explain	
Describe the process of code division multiple access in detail. OR	[5+5]
Describe with a neat sketch the direct sequence Spread spectrum technique. Describe the concept of Ranging using DSSS.	[5+5]
	Describe the algebraic structure of cyclic codes. Explain how to encode cyclic codes. OR Give the matrix description for linear block codes. Decode convolution process using viterbi algorithm. What are the characteristics of PN sequences? Explain Describe the process of code division multiple access in detail. OR Describe with a neat sketch the direct sequence Spread spectrum technique. Describe the concept of Ranging using DSSS.

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