Code No: RT32043 **R13** SET - 1

III B. Tech II Semester Supplementary Examinations, November/December-2016

DIGITAL COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Write the elements of digital communication systems.	[3M]
	b)	Write about DPSK.	[4M]
	c)	Explain probability of error using matched filter.	[4M]
	d)	Define discrete messages.	[4M]
	e)	Write the advantages of source coding.	[3M]
	f)	Define encoding.	[4M]

PART –B

2	a)	Derive the expression for signal to noise ratio of PCM system?	[12M]
	b)	Explain the advantages of digital communication systems.	[4M]
3	a)	Explain the principle of binary phase shift keying.	[8M]
	b)	Name different modulation techniques and explain which technique is good for digital modulation.	[8M]
4	a)	What is probability of error and explain its significance?	[8M]
	b)	Derive the expression for probability of error of ASK.	[8M]
5	a)	Define joint and conditional entropies. Obtain the relation between them.	[8M]
	b)	Write a short note on concept of amount of information and its properties.	[8M]
6	a)	Write short notes on the capacity of continuous channels.	[8M]
	b)	Apply Huffmann's encoding procedure to the following message ensemble and determine the average length of the encoded message. $\{X\} = \{x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8, x_9, x_{10}\}$ $P\{X\} = \{0.18,0.17,0.16,0.15,0.10,0.08,0.05,0.05,0.04,0.02\}$ The encoding alphabet is $\{D\} = \{0, 1, 2, 3\}$.	[8M]
7	a)	Give the Comparison of Error Rates in Coded and Uncoded Transmission.	[8M]
	b)	What are the advantages and disadvantages of cyclic codes? Design an encoder for the (7, 4) binary cyclic code generated by $g(x) = 1+x+x^3$ and verify its operation using the message vector (0101).	[8M]

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