M.E. Second Semester (Electrical & Elect.) (New-CGS)

13292 : Elective-I : Digital Communication : 2 EEEME 4

AW - 3574

P. Pages : 2

Time : Three Hours

* 0 3 6 9 *

Max. Marks : 80

Notes : 1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.
4. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) What is memoryless modulation? Explain PAM scheme with derivation of Energy signal and Euclidean distance. 7

   b) What do you mean by orthogonal signaling. Hence explain it using FSR scheme. 7

OR

2. a) What is the need of digital modulation? Also explain in short how the digitally modulated signals are represented? 7

   b) Explain in detail working of PSK. 7

3. a) Write in short the comparison of Digital signaling methods. 6

   b) Explain the working of optimal receiver. 7

OR

4. Explain how matched filter and correlators are used in receiver of digital communication. 13

5. a) In regards to carrier & symbol synchronization, explain in short signal parameter estimation. Also comment on its necessity. 6

   b) Explain Joint Estimation of carrier phase and symbol timing with the help of example. 7

OR

6. The loop filter G(s) in a PLL is implemented with the active filter shown in Fig. a) Determine the system function G(s) & express the time constants T_1 & T_2 in terms of circuit parameters. 13

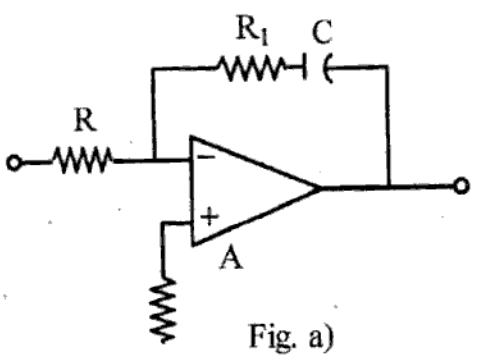

Fig. a)

SECTION – B

7.	a)	Define the terms: i) Hamming distance ii) Code rectors in Linear Block Codes iii) Code efficiency	7
	b)	Write short notes on- Optimum Soft Decision decoding of Linear Block Codes.	6

OR

8.	a)	What is syndrome. Explain with example.	7
	b)	What are practical consideration in convolutional code? Explain with example.	6
9.	a)	What do you mean by punctured convolutional codes? Explain the importance of some in digital communication.	7
	b)	Explain sequential decoding for convolutional codes with example.	7

OR

10.	Explain any two decoding algorithms for convolutional codes and explain in detail.	14
11.	Explain optimum receiver for channels with ISI and AWGN along with suitable derivation.	13

OR

12.	Explain the 4-level duobinary signal transmission in detail.	13

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