MANAV RACHNA
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UNIVERSITY ↗
(FORMERLY MANAV RACHNA COLLEGE OF ENGINEERING
NAAC ACCREDITED 'A' GRADE INSTITUTION)
Declared as State Private University under section 2f of the UGC act, 1956

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

"T3-Examination, May-2018"

Semester:4th
Subject:Analog & Digital Communication
Branch: ECE
Course Type:Core
Time: 3 Hours
Max.Marks: 80

Date of Exam:17/05/2018
Subject Code:ECH210-T
Session: II
Course Nature:Hard
Program: B.Tech
Signature: HOD/Associate HOD:

PART-A
All questions are compulsory.

Q1(a). How to avoid aliasing effect in a sampled signal?   (10*2=20)
   (b). Explain the difference between TDM & FDM signal.
   (c). Write the expression for μ-law compander.
   (d). What is the main advantage of using DPCM scheme?
   (e). Discuss BPSK Modulator.
   (f). Compare spectral occupancy of PSK and FSK scheme.
   (g). Define Minimum shift Keying.
   (h). Explain the advantage of digital communication.
   (i). What do you mean by shift keying.
   (j). Explain Nyquist Criteria.

PART-B
Attempt any two questions.

Q2(a). Discuss the sampling techniques and signal recovery through holding used in PAM.   (10)
   (b). Explain the difference between natural sampling and flat top sampling. Explain with diagram.   (5)

Q3(a). What do you understand by PCM? How Quantization and Coding is done. Explain with suitable diagram.   (10)
   (b). How does Pulse Code Modulation (PCM) differs from differential Pulse Code Modulation. Explain with diagram.   (5)

Q4(a). Explain Differential Pulse Code Modulation (DPCM) scheme in details.   (5)
   (b). Discuss in brief Delta Modulation (DM). What is the limitation of Delta Modulation.   (5)
   (c). How to generate PPM signal from PWM signal? Explain with proper waveform.   (5)

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PART-C
Attempt any two questions.

Q5. What are the advantages and disadvantages of M-ary digital carrier modulation? Explain M-ary QAM transmitter and receiver with neat block diagram. (15)

Q6(a). Explain the generation and detection of ASK with neat diagram. (7)

(b). Why QPSK is better than PSK? Explain with suitable examples. Sketch the QPSK waveform for sequence 1110010100101 assuming carrier frequency equal to bit rate. (8)

(10)

Q7(a). Prove that maximum SNR of a matched filter is $(SNR)_0 = 2E/N_0$. (5)

(b). Explain the generation and detection of BPSK.