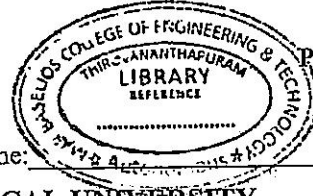


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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech (Minor) Degree Examination July 2021 (2019 admission)

Course Code: ECT284

Course Name: DIGITAL COMMUNICATION

Max. Marks: 100

Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks)

		Marks
1	State and explain sampling theorem.	3
2	Explain the classifications of communication channels.	3
3	Differentiate granular and slope overload distortions.	3
4	What do you mean by source encoding?	3
5	Explain briefly about T1 signalling system.	3
6	Explain the needs for signalling codes.	3
7	Differentiate coherent and non coherent detectors.	3
8	Explain the probability of error of a BPSK system.	3
9	Define channel capacity.	3
10	Explain (n,k) linear block codes with its properties.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

- | | | |
|----|---|----|
| 11 | a) Draw the block diagram of a linear PCM system and explain each block. | 10 |
| | b) Differentiate A-law and μ -law companding . | 4 |
| 12 | a) Draw the block diagram of digital communication system and explain the blocks. | 10 |
| | b) Define quantization. Explain different types of quantization methods. | 4 |

Module -2

- | | | |
|----|---|----|
| 13 | a) Draw the block diagram of a delta modulator and explain the functions of each block. | 10 |
| | b) Explain the principle of adaptive delta modulation. | 4 |
| 14 | a) Explain the principle of differential PCM encoding and decoding. | 10 |
| | b) Explain the advantages of differential PCM over linear PCM. | 4 |

Module -3

- 15 a) Explain the principle of alternate mark inversion coding with an example 7
b) Explain B3ZS code. Encode {0100000001011} using B3ZS code. 7
- 16 a) Write short note on Manchester codes and draw the Manchester code for the bit pattern {10110010}. 10
b) Explain Binary Zero Substitution. 4

Module -4

- 17 a) Explain BPSK system with signal constellation diagram. 7
b) With the help of block diagram explain BPSK transmitter and receiver . 7
- 18 a) Draw the block diagram of QPSK transmitter and receiver and explain the functions of each block. Draw the BER-SNR curve. 10
b) Explain briefly about QAM modulation. 4

Module -5

- 19 a) Explain channel encoding and decoding with (n,k) linear block codes. 10
b) Explain the properties of cyclic codes. 4
- 20 a) Explain the concept of correlation receiver with a neat block diagram. 7
b) Explain how matched filter is used in digital reception. 7

