DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE –APRIL -2022.

DIGITAL COMMUNICATION

(Maximum Marks : 100)   [Time : 3 hours]

PART–A
(Max. Marks:10)   Marks

I. Answer **all** the questions in one or two sentences. Each question carries 2 marks.

1. List the different analog pulse modulation techniques.

2. Draw the power spectrum of QPSK.

3. State Shannon Hartley theorem.

4. Define the term burst error.

5. Differentiate public key and private key algorithm.

(5x2=10)

PART - B
(Max. Marks: 30)

II   Answer **any five** of the following questions . Each question carries 6 marks.

1. Compare the different pulse modulation techniques.

2. Explain adaptive delta modulation with a block diagram.

3. Describe the block interleaving method for burst error correction.

4. Explain Shannon-Fano algorithm with an example.

5. Differentiate Simplex, Half-duplex and Full-duplex data transmission modes.

6. With a neat block diagram, describe the working of BPSK, receiver.

7. Describe the process of generating and verifying a digital signature.

(5x6 =30)

PART - C
(Max. Marks: 60)

(Answer **one full** question from each unit. Each full question carries 15 marks)

UNIT I

III a) Explain the basic elements of PCM system with a neat block diagram. (10)

b) Write a short note on the noises in PCM (5)

OR

IV a) Define quantization error. Briefly explain non-uniform quantization and companding (8)

b) Explain the noises in delta modulation. (7)

UNIT- II

V a) Explain BFSK system with non-coherent detection. Draw necessary diagrams and waveforms. (10)

b) Draw the diagram of QPSK transmitter. (5)

OR

VI a) Explain MSK transmitter and receiver. (10)

b) List the advantages and disadvantages of MSK compared to QPSK. (5)

UNIT- III

VII a) Define entropy. Derive the expression for finding entropy. (8)

b) Describe how error detection is done using single parity bit method. Explain the limitation of this method with an example. (7)

OR

VIII a) What are Hamming codes? Explain how error correction is done using Hamming code (10)

b) Define the term constraint length in convolutional codes. Draw the structure of a convolutional encoder. (5)

UNIT – IV

IX Write notes on

a) Message switching (b) Packet switching (c) FDM (15)

OR

X a) Describe the different ARQ schemes used for error control in communication networks. (10)

b) Explain RSA algorithm. (5)

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