

BUDDHA INSTITUTE OF TECHNOLOGY, GIDA, GORAKHPUR DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING PRE-AKTU EXAM (EVEN SEMESTER 2022-23)

JULY-2023

Course:	B.Tech		Semester:	4
Subject:	COMMUNICATION ENGG.		Subject Code:	KEC-401
M.M.	100	Time:	3:00 Hrs	Roll No

SECTION-A

Marks: 10*2=20 1. Attempt ALL questions. Each questions carry equal marks. Level of Course Q. No. Question Taxonomy Outcome Write the short note on communication based on channel? C01 L2 a. Sketch the time domain of over modulated AM Signal. C01 b. L2 What is angle modulation? CO2 L2 c. Sketch the time domain of FM Signal. CO2 d. L2 Explain the Noise in communication. CO3 L2 e. What is sample space. CO3 L2 f. $X(t) = 10\cos(2\pi \times 10^6 t) + 5\cos(2\pi \times 10^3 t) + 2\cos(4\pi \times 10^3)$. Calculate C04 g. L3 sampling rate and time. Draw the block diagram of DPCM System. C04 h. L2 Explain the Digital modulation schemes. L2 C05 i. Sketch the FSK modulated Signal for 11010010. C05 k. L2

SECTION-B

2. Attempt ALL questions. Each questions carry equal marks.		Marks: 3*10= 3	
Q. No.	Question	Level of Taxonomy	Course Outcome
a.	Illustrate the idea of having modulation index for an AM signal equal to 1, greater than 1, and less than 1.	L2	CO-1
a.	Demonstrate Frequency Modulation technique with its expression and output.	L2	CO-2
b.	Explain the properties of Probability Density function and Cumulative Distribution Function.	L2	CO-3
b.	Explain the Explain the following in reference to the delta modulation (DM). a. Granular Noise and b. Slope overload Provide the quantization noise for the DM with a step size Δ (Delta).	L3	CO-4
с.	Illustrate the Modulator and Demodulator for Amplitude Shift Keying.	L2	CO-5

SECTION-C

3. Attempt ANY ONE questions. Each questions carry equal marks.

Marks: 1*10=10

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	Explain Quadrature Amplitude Modulation (QAM)?	L2	C01
b.	An AM single is given by $X_{AM}(t) = 10 \cos (2\pi \times 10^6 t) + 5 \cos(2\pi \times 10^6 t) \cos (2\pi \times 10^3 t) + 2 \cos (2\pi \times 10^6 t) \cos(4\pi \times 103)$. Determine the net modulation index, percentage modulation, frequency of side band and their amplitude, total power. What will the band width of S/G and transmission efficiency?	L3	C01

4. Attempt ANY ONE questions. Each questions carry equal marks.

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	A single-tone FM is represented by the voltage equation $X_{FM}(t) = 10\cos(6*10^8.2\pi t + 5\sin2\pi.3000t + 10\sin2\pi.2000t)$. Find the following (1) Total power of FM (2) frequency deviation Δf (3) Bandwidth of FM signal.	L3	CO2
b.	Explain the Foster-Seely Discriminator method?	L2	CO2

5. Attempt ANY ONE questions. Each questions carry equal marks.

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	Calculate the signal to noise ratio of frequency modulation. Also calculate noise figure.	L2	CO3
b.	Calculate the figure of merit in DSB-SC signal?	L2	CO3

6. Attempt ANY ONE questions. Each questions carry equal marks.

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	Explain the PCM-TDM system with proper block diagram?	L2	CO4
b.	Describe the delta modulation with proper block diagram?	L2	CO4

7. Attempt ANY ONE questions. Each questions carry equal marks.

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	Describe the PSK (Phase Shift Keying) Generation and demodulation with neat diagram.	L2	C05
b.	Illustrate the concept of MSK with its modulator and demodulator. Also draw the signal space diagram for the MSK.	L2	C05

Note: Revised Bloom's Taxonomy Levels-

L1-> Remembering, L2-> Understanding, L3-> Applying, L4-> Analyzing, L5-> Evaluating, L6-> Creating

Marks: 1*10=10

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Marks: 1*10=10

Marks: 1*10=10