Register Number::……..

KUMARAGURU
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B.TECH. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Third Semester

INFORMATION TECHNOLOGY

U18ECT3011: Principles of Communication

COURSE OUTCOMES

CO1: Describe the fundamental concepts of communication systems.
CO2: Compare analog modulation schemes.
CO3: Explain digital modulation schemes.
CO4: Classify standard base band data transmission techniques.
CO5: Paraphrase the spread spectrum techniques and multiple access techniques.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions: -
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	What does dB represent?	CO1	[K_2]
2.	List out the primary disadvantage of low-level AM	CO2	[K_1]
3.	Define heterodyning.	CO2	[K_1]
4.	Why ASK is sometimes referred to as on-off keying?	CO3	[K1]
5.	What is the purpose of clock recovery circuit in digital modulation system? When is it used?	CO3	[K_2]
6.	For minimum line speed with an 8-bit PCM for speech signal ranging upto 1 Volt, calculate the resolution and quantization error.	CO4	[K_1]
7.	What is aperture error?	CO4	[K1]
8.	Identify the most common methods of pulse modulation.	CO4	[K_2]
9.	What is multiple access and list out the different types of multiple access techniques.	CO5	[K_3]
10.	Identify two basic characterizations of frequency hopping.	CO5	[K3]

Answer any FIVE Questions: -
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	With a simplified block diagram, explain in brief on analog electronic communication system.	8	CO1	[K_2]
	b)	Identify the reasons for the need of modulation in electronic communication system	4	CO1	[K_3]

	c)	What is meant by external noise and mention the primary sources of external noise?	4	CO1	[K_2]
12.	a)	Explain the principles of amplitude modulation?	10	CO2	[K_2]
	b)	For an AM DSBFC modulation with a carrier frequency, f_c = 100KHz and maximum modulating signal frequency f_m(max) = 5 KHz, identify the Frequency limit of upper and lower sideband, Bandwidth and draw the output frequency spectrum.	6	CO2	[K_3]
13.	a)	What are the types of AM receivers and explain in brief on any one type of AM receiver.	10	CO2	[K_2]
	b)	Compare angle modulation with amplitude modulation.	6	CO2	[K_4]
14.	a)	Write a short note on (i) Frequency shift keying (ii) FSK Transmitter and receiver	10	CO3	[K_2]
	b)	For a binary FSK signal with a mark frequency of 49 KHz, a space frequency of 51KHz and an input bit rate of 2 kbps, determine peak frequency deviation, minimum bandwith and baud.	6	CO3	[K_3]
15.	a)	Explain about Delta modulation PCM.	10	CO4	[K_2]
	b)	Write a short note on sample and hold circuit.	6	CO4	[K_2]
16.	a)	Explain in brief on Pseudo noise sequence.	6	CO5	[K_2]
	b)	Identify the significance of spread spectrum and write a short note on direct sequence spread spectrum with coherent binary phase shift keying.	10	CO5	[K_3]

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