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(RE EXAM)

DECEMBER 2023

S.Y. (INFORMATION TECHNOLOGY) (SEMESTER - I)

COURSE NAME: DATA COMMUNICATION AND NETWORKING

COURSE CODE: ES21203IT

(PATTERN 2020)

Time: [2.00 Hrs.] **[Max. Marks: 60]**

Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data wherever required**
4) **All questions are compulsory. Solve any two sub questions each from each Question 1,2,3, 4,5 and 6 respectively.**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Represent periodic and non-periodic analog and digital signals in the time domain, also mention the suitable values you assumed.	[5]	1	3
	b) Compare the effect of transmission Impairments on Analog signal and Digital signal.	[5]	1	3
	c) A nonperiodic composite signal has a bandwidth of 300 kHz, with a middle frequency of 350 kHz and peak amplitude of 50V. The two extreme frequencies have an amplitude of 0. Calculate the frequency at extreme points and draw the frequency domain of the signal.	[5]	1	3
Q.2	a) Explain Delta Modulation (DM) in detail.	[5]	2	3
	b) Differentiate between TDM and FDM	[5]	2	3
	c) What is Spread Spectrum compare Frequency Hopping Spread Spectrum (FHSS), Direct Sequence Spread Spectrum (DSSS).	[5]	2	3
Q.3	a) Explain Guided Media and compare any two sub types of the same.	[5]	3	2
	b) What are the three Phases of Packet switching, explain any two phases in detail.	[5]	3	2
	c) Brief the Digital Subscriber Line and brief about any two types of the same.	[5]	3	2

Q.4	a) Design a network using star topology and explain the functionality of connecting device used in star topology.	[5]	4	3
	b) Discuss the peer- to-peer process of communication in OSI layered model	[5]	4	3
	c) Explain the logical addressing in detail, calculate the range of network Id belongs to each class.	[5]	4	3
Q.5	a) Exemplify CRC division method, consider both cases, error and no-error.	[5]	5	3
	b) Write a short note on HDLC frame and compare it with PPP.	[5]	5	3
	c) Compare Go back to N with Selective repeat.	[5]	5	3
Q.6	a) What is Random access protocol, compare pure and slotted Aloha methods.	[5]	6	3
	b) Explain the working of Carrier Sense Multiple Access with Collision Detection (CSMA/CD)	[5]	6	3
	c) Differentiate between Time-Division Multiple Access (TDMA) and Code Division Multiple Access (CDMA).	[5]	6	3

Note: [BT level- 1: Remember 2: Understand 3: Apply 4: Analyze 5: Evaluate 6:Create]