



PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – MAY 2025

Date: 26-05-2025

Time: 01:00 pm – 04:00 pm

School: SOCSE	Program: B. Tech-CSE
Course Code : CSE3155	Course Name: DATA COMMUNICATION AND COMPUTER NETWORKS
Semester: IV	Max Marks: 100 Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	26	22	26	26	NA

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1	Identify the components of a Data Communication System.	2 Marks	L1	C01
2	Define multiplexing. Mention any one type.	2 Marks	L1	C01
3	A signal travels through an amplifier, and its power is increased 10 times, given that $P_2=10P_1$. Compute the amplification (gain of power) in decibels (dB) for this case.	2 Marks	L2	C01
4	Assuming even parity, find the parity bit for each of the following data units. a. 1001011 b. 0001100	2 Marks	L1	C02
5	Identify the class of these classful IP addresses: a. 130.34.54.12 b. 200.34.2.1	2 Marks	L1	C03
6	Define RIP.	2 Marks	L1	C03
7	List the services provided by the network layer.	2 Marks	L1	C03
8	Outline the purpose of the sliding window protocol.	2 Marks	L1	C04
9	Differentiate between TCP and UDP.	2 Marks	L2	C04
10	Describe DNS.	2 Marks	L1	C04

Part B

Answer the Questions Total 80 Marks.

11.	a.	Explain the functionalities of each layer in TCP/IP and how they contribute to data transmission over a network.	10 Marks	L2	C01
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	b.	Explain the factors that affect the performance of a network.	10 Marks	L2	C01
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or

12.	a.	Explain Multiplexing and its types in detail.	10 Marks	L2	C01
	b.	Classify and explain different types of transmission media and highlight their typical use cases and performance in terms of bandwidth and interference.	10 Marks	L2	C01

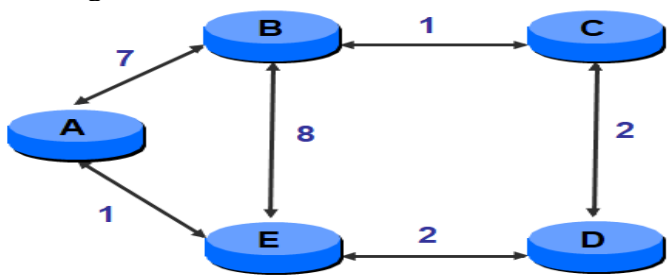
13.	a.	Discuss the types of controlled access protocols and compare their effectiveness in preventing collisions.	10 Marks	L2	C02
	b.	Explain how an encoder and decoder work for single parity check.	10 Marks	L2	C02

Or

14.	a.	Given the dataword 101001111 and the divisor 10111, compute the CRC codeword at the sender site using binary division.	10 Marks	L2	C02
	b.	Explain CSMA/CD and CSMA/CA with neat diagrams.	10 Marks	L2	C02

15.	a.	Compute the First host ID, Broadcast address and network address for the first three networks , the given address is 10.0.0.0/20	10 Marks	L2	C03
	b.	Explain the various transition techniques from IPv4 to IPv6	10 Marks	L2	C03

Or

16.	a.	Using the link-state routing algorithm, compute the optimal route for the given network with Root node A.	10 Marks	L2	C03
			10 Marks	L2	C03
	b.	Explain the concepts of Classful and Classless IP addressing. How do they differ in terms of address allocation and routing?	10 Marks	L2	C03

17.	a.	Assuming a sender's window size of 3 and using the selective repeat protocol, calculate the total number of data transmissions needed if every 5th transmission is lost while sending 10 frames, including all necessary retransmissions	10 Marks	L3	C04
	b.	Discuss the features of HTTP and also discuss how HTTP works	10 Marks	L2	C04

Or

18.	a.	With your own example demonstrate sliding window protocol in detail	10 Marks	L3	C04
	b.	Explain how UDP works and its datagram format with neat diagram.	10 Marks	L2	C04