



R22 Regulation

Subject code:4E3EE

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech III Semester Regular/Supplementary Examinations, December 2025

COMPUTER NETWORKS
(Common to CSE, CSE(AI&ML) & CSE(DS))

Maximum Marks: 60

Date:27.12.2025

Duration: 3 hours

- Note:
- 1.This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x1M=10 Marks)		Marks	CO	BTL
1a)	How do guided media differ from unguided media?	1M	1	L2
b)	How the reliability of token ring topology can be improved?	1M	1	L3
c)	Distinguish between forward error correction versus error correction by retransmission.	1M	2	L2
d)	Mention the disadvantage of stop and wait protocol and advantage of sliding window protocol.	1M	2	L2
e)	What is flooding in network layer?	1M	3	L1
f)	What are the key characteristics of a Datagram subnet?	1M	3	L1
g)	Define multiplexing in the Transport Layer.	1M	4	L1
h)	What is the role played by congestion control?	1M	4	L1
i)	What are the top-level domains in DNS name space?	1M	5	L1
j)	State the functionality of application layer.	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Discuss briefly about transmission media in the physical layer.	5M	1	L3
	b) Illustrate common type of topologies used in computer networking?	5M	1	L3
OR				
3	a) Analyze the OSI model and TCP/IP protocol suite with clear representation of layered architecture?	5M	1	L3
	b) What advantage does a circuit-switched network have over a packet-switched network?	5M	1	L2
4	a) What are the different types of wireless MAC frame? Draw the MAC frame structures.	5M	2	L3
	b) Compute the CRC for 110100101 with divisor 1010.	5M	2	L3

OR

5	a) With the flow diagram discuss the operation of Carrier Sense Multiple Access Collision Avoidance protocol. b) List out the situations in which pure ALOHA and slotted ALOHA performs better. Justify your answer.	5M 5M	2 2	L2 L2
6	a) Explain how hierarchical addressing and routing reduce routing table sizes and improve scalability. b) Describe ATM cell structure, virtual paths, virtual circuits, ATM addressing, and ATM adaptation layers (AAL).	5M 5M	3 3	L2 L2
OR				
7	a) Explain the concepts of Virtual Circuit and Datagram subnets in the Network Layer. b) Analyze the functioning and characteristics of the Shortest Path Routing Algorithm.	5M 5M	3 3	L2 L2
8	a) Give the format of the UDP segment and TCP segment? Explain when UDP is preferred to TCP. b) Discuss briefly about Leaky bucket and Token bucket algorithms in Congestion control.	5M 5M	4 4	L2 L3
OR				
9	a) What are the services provided by transport layer to the upper layer. b) TCP provides reliable data transfer over an unreliable network. Describe the mechanisms it uses to achieve this reliability, focusing on the role of the Acknowledgement Number, Timeouts, and Retransmission.	5M 5M	4 4	L2 L2
10	a) Discuss the world wide web architecture, principles and applications? b) Explain the step by process for E mail communication in detail.	5M 5M	5 5	L2 L2
OR				
11	a) Explain the steps how DNS name lookup resolver works. b) What is SNMP? What is SNMP basic components and their functionalities.	5M 5M	5 5	L2 L2