Reg. No. | | | | | | | | | | | |

B. E / B. TECH.DEGREE EXAMINATIONS, MAY 2024
Fifth Semester
IT18501 - DATA COMMUNICATION AND NETWORKING
(Information Technology)
(Regulation 2018 / 2018A)

TIME:3 HOURS   **MAX. MARKS: 100**

| COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Explore the concepts of network architecture.	3
CO 2	Appraise the concept of addressing scheme and various routing protocols in data communication.	5
CO 3	Design flow control and congestion control algorithms.	6
CO 4	Relate the concepts to real time applications of networks.	3
CO 5	Analyze network function virtualization.	4

PART- A(10x2=20Marks)
(Answer all Questions)

		CO	RBT LEVEL
1.	Explain the various network categories with respect to size, shape, and usage of networks.	1	2
2.	Identify the steps involved in the development of network applications.	1	2
3.	Discuss the Exponential Backoff strategy used in retransmission.	2	2
4.	Compare and contrast stop and wait with sliding window protocols.	2	3
5.	Explain the features of IPV6 addressing.	3	2
6.	Compare and Contrast PIM and DVMRP routing protocols.	3	3
7.	Demonstrate the workings of the UDP Message queue.	4	3
8.	Describe the silly window syndrome in TCP.	4	2
9.	Compare and contrast pushing and pulling techniques in the local repository.	5	3

10.	Summarize the use of Capex in SDN.		**5**	**2**

PART- B (5x 14=70Marks)

			Marks	CO	RBT LEVEL
11. (a)	Explain how layering is used in the 3-tier architecture model.		**(14)**	**1**	**2**
	(OR)				
(b)	Explain the various networking topologies used in LANs.		**(14)**	**1**	**2**
12. (a)	Illustrate how Flow control mechanisms synchronize a network to transmit from a source without errors in IEEE 802.3.		**(14)**	**2**	**3**
	(OR)				
(b)	Illustrate how media access control mechanisms regulate a network to transmit from one terminal to the other without collision in Ethernet and Wireless LAN.		**(14)**	**2**	**3**
13. (a)	Consider a network with 5 routers A to E connected with links having weights as shown in the following diagram.		**(14)**	**3**	**3**
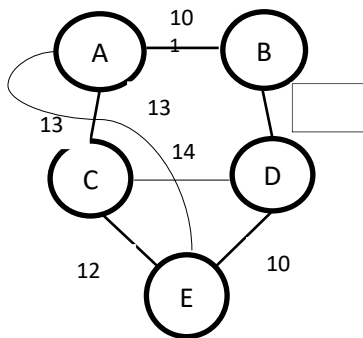
All the routers use the distance vector-based routing algorithm to update their routing tables. Every router has an initialized routing table that includes an entry for every neighbour along with the weight of the corresponding connecting link. After all the routing tables stabilize, write the final distance table, which includes all routers.

(OR)

(b)	Construct a shared and source-specific tree to demonstrate PIM operations and show the delivery of a packet along a shared tree. Also show the workings of finding routes in the given network.		**(14)**	**3**	**3**
14. (a)	Demonstrate the workings of TCP Connection Management for Reliable Transmission.		**(14)**	**4**	**3**
	(OR)				
(b)	Demonstrate the workings of the domain name server in the application layer.		**(14)**	**4**	**3**
15. (a)	Demonstrate the components of software-defined networks and show the workings of SDN compared with traditional applications.		**(14)**	**5**	**3**

(OR)

(b)	Illustrate the need for network virtualization and its operations in software-defined networks.	**(14)**	**5**	**3**

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Given a remainder of 111, a data unit of 10110011, and a divisor of 1001, the data is received as 10110010111. Will the system detect an error in the data unit? If so, assess the system with the necessary principles.	**(10)**	**2**	**5**

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