Code No: R2031051 **R20** SET - 1

III B. Tech I Semester Regular/Supplementary Examinations, December -2023
COMPUTER NETWORKS
(Common to CSE, IT)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	What are the different the categories of networks? Compare them.	[7M]
	b)	Assume 6 devices are arranged in a mesh topology. How many cables are needed? How many ports are needed for each device? Discuss with suitable diagram.	[7M]
		(OR)	
2.	a)	What are the different layers of OSI reference model? Discuss about top order layers.	[7M]
	b)	Describe the relative advantages and disadvantages of the following media: i) Satellite links ii) Optical fiber transmission.	[7M]

UNIT-II

3.	a)	What are the responsibilities of data link layer? Describe the issues in data link layer.	[7M]
	b)	Given a remainder of 111, a data unit of 10110011 and a divisor of 1001, is there an error in the data unit. Justify your answer with necessary principles.	[7M]
		(OR)	
4.	a)	Describe the selective repeat &stop and wait sliding window protocols.	[7M]
	b)	Explain in detail about multiplexing in PPP.	[7M]

UNIT-III

5.	a)	What is CSMA? List the protocols used with CSMA.	[7M]
	b)	Explain the concept of Token passing for controlled access.	[7M]
		(OR)	
6.	a)	Explain the functioning of wireless LAN in detail.	[7M]
	b)	What is channelization? What are the different techniques? Explain the importance.	[7M]

UNIT-IV

7.	a)	Discuss about Congestion prevention policies.	[7M]
	b)	Describe the issues in the implementation of connection less and connection-oriented services.	[7M]
		(OR)	
8.	a)	Explain the following: i) Tunnelling ii) Fragmentation	[7M]
	b)	Compare IPv4 and IPv6.	[7M]

UNIT-V

9.	a)	With neat architecture, explain TCP in detail.	[7M]
	b)	Illustrate the domain name hierarchy and the steps in resolution	[7M]
		(OR)	
10.	a)	Explain the message transfer using Simple Mail Transfer Protocol	[7M]
	b)	What are the advantages of allowing persistent TCP connections in HTTP? Discuss.	[7M]

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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
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*****

UNIT-I

1.	a)	Explain the bus type topology and ring type topology networks. Compare their performance.	[7M]
	b)	What are the features provided by layering? Why is layered architecture of network preferred? Explain.	[7M]
		(OR)	
2.	a)	What are the different layers of OSI reference model? Discuss about the significance of lower level layers.	[7M]
	b)	What is the significance of unguided media? Explain with examples.	[7M]

UNIT-II

3.	a)	How is frame order and flow control achieved using the data link layer?	[7M]
	b)	Describe the sliding window protocol for data link layer.	[7M]
		(OR)	
4.	a)	Discuss in detail about HDLC.	[7M]
	b)	Explain the following Error detection mechanism: (i)Cyclic Redundancy check (ii) Checksum	[7M]

UNIT-III

5.	a)	Explain the physical properties of Ethernet 802.3 with necessary diagram of Ethernet transceiver and adapter.	[7M]
	b)	Explain the concept of Token Bus. Give its implementation issues.	[7M]
		(OR)	
6.	a)	Explain the concept of Slotted Aloha.	[7M]
	b)	Discuss about the frame structure of TDMA. Compare it with that of TDMA.	[7M]

UNIT-IV

7.	a)	Explain the distance vector routing algorithm.	[7M]
	b)	What are classful and classless addressing? Find the class of the following addresses 227.13.14.88 227.13.14.88	[7M]
		(OR)	
8.	a)	Explain the following: i)ICMP ii) DHCP	[7M]
	b)	Differentiate circuit switching and packet switching.	[7M]

UNIT-V

9.	a)	What are the services provided by Transport layer? Discuss.	[7M]
	b)	What is WWW? Discuss its evolution.	[7M]
		(OR)	
10.	a)	With neat architecture, explain UDP and its packet format	[8M]
	b)	Discuss how simple mail transfer protocol (SMTP) works?	[6M]

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Code No: R2031051 **R20** SET - 3

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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	What are the objectives of computer networks? What are the network components? Explain.	[7M]
	b)	Mention the advantages of co-axial cables over twisted pair and fiber optics cables.	[7M]
		(OR)	
2.	a)	What is meant by inter networking? Discuss about Internet history.	[7M]
	b)	What are the different layers of TCP/IP reference model? Discuss with neat sketch.	[7M]

UNIT-II

3.	a)	Discuss the methods used for controlling errors in data link layer.	[7M]
	b)	What is the need for error detection? Explain with typical examples.	[7M]
		(OR)	
4.	a)	Explain different flow control mechanisms used in brief.	[7M]
	b)	Compare and contrast fixed size framing and variable size framing.	[7M]

UNIT-III

5.	a)	Briefly define key requirements of wireless LAN.	[7M]
	b)	Mention some of the physical properties of Ethernet.	[7M]
		(OR)	
6.	a)	Explain CSMA and protocols with Collision Avoidance.	[7M]
	b)	Discuss about the following: i)Reservation ii) Polling	[7M]

UNIT-IV

7.	a)	Explain the shortest path algorithm with suitable illustrations.	[7M]
	b)	Mention the limitations of distance vector routing. How to overcome it?	[7M]
		(OR)	
8.	a)	Discuss Hierarchical routing with an example.	[7M]
	b)	What is the network address in a class A subnet with the IP address of one of the hosts as 25.34.12.56 and mask 255.255.0.0?	[7M]

UNIT-V

9.	a)	Explain the architecture and services of e-mailing system.	[7M]
	b)	Write short notes on SNMP.	[7M]
		(OR)	
10.	a)	Discuss in detail about DNS and its frame format	[7M]
	b)	Write short notes on TELNET	[7M]

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Code No: R2031051 **R20** SET - 4

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Answer any **FIVE** Questions **ONE** Question from **Each unit**
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*****

UNIT-I

1.	a)	Explain the Mesh and Tree topologies of the network. Compare their performance.	[7M]
	b)	State the major functions performed by the presentation layer of the ISO OSI model.	[7M]
		(OR)	
2.	a)	What is LAN? Explain its features.	[7M]
	b)	Explain the various media used for data transmission in computer networks.	[7M]

UNIT-II

3.	a)	What is framing? Explain different types of framing protocols with their Format.	[7M]
	b)	Suppose we want to transmit the message 11001001 and protect it from errors using the CRC polynomial $x^3 + 1$. Use polynomial long division to determine the message that should be transmitted.	[7M]
		(OR)	
4.	a)	What is the significance of multi link PPP? Discuss.	[7M]
	b)	What are the two different types of errors occurred during data transmission? Explain.	[7M]

UNIT-III

5.	a)	Explain CSMA and protocols with Collision detection.	[7M]
	b)	Compare TDMA, FDMA and CDMA.	[7M]
		(OR)	
6.	a)	What is fast Ethernet and gigabit Ethernet? Compare them	[7M]
	b)	Compare the performance of Pure ALOHA and Slotted ALOHA.	[7M]

UNIT-IV

7.	a)	What are the different approaches in Packet Switching? Explain them in detail.	[7M]
	b)	What are the salient features of IPV6? Mention various protocols used in it	[7M]
		(OR)	
8.	a)	What are the metrics used by routing protocols? Explain them.	[7M]
	b)	Discuss about general principles of congestion control.	[7M]

UNIT-V

9.	a)	Discuss about Congestion control in TCP with a neat diagram.	[7M]
	b)	Write about Local versus remote logging in TELNET.	[7M]
		(OR)	
10.		Write short notes on the following a) E-mail b) HTTP	[14M]

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