Code No: R2032421 **R20** SET -1

III B. Tech II Semester Regular Examinations, July - 2023
COMPUTER NETWORKS
(Com. to CSE-(AIML), CSE (AI), CSE (DS), CSE (AIDS), AIDS, AIML, CSD)

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)	Describe the various network layer models proposed in the OSI model. Explain the differences between them.	[7M]
	b)	Compare and contrast between MAN and WAN with neat diagrams.	[7M]
		(OR)	
2.	a)	Explain different Network Topologies.	[7M]
	b)	Compare guided media with unguided media	[7M]

UNIT-II

3.	a)	Explain data link layer design issues	[7M]
	b)	Describe the necessity of Error Correcting and Error Detecting codes.	[7M]
		(OR)	
4.	a)	Explain Go-Back- N ARQ protocol using Selective Repeat.	[7M]
	b)	What is the need of Flow control? Explain the common approaches for flow control in data link layer.	[7M]

UNIT-III

5.	a)	Explain the frequency division multiplexing with a neat sketch.	[7M]
	b)	Compare the throughput of pure aloha and slotted aloha.	[7M]
		(OR)	
6.	a)	Explain 802.11 physical layer and protocol stack.	[7M]
	b)	Explain Collision-Free Protocols with an example.	[7M]

UNIT-IV

7.	a)	How does a virtual circuit differ from a physical circuit? What advantages would a virtual circuit provide?	[7M]
	b)	Explain the distance vector routing protocol with an example.	[7M]
		(OR)	
8.	a)	Briefly explain DCHP protocol.	[7M]
	b)	Differentiate between IPV4 and IPV6.	[7M]

UNIT-V

9.	a)	Give the format of the UDP segment and TCP segment? Explain when UDP is preferred to TCP.	[7M]
	b)	Discuss the role played by the message transfer agent.	[7M]
		(OR)	
10.	a)	What is Electronic Mail? Explain message transfer and final delivery.	[7M]
	b)	How DNS service maps domain names to IP addresses?	[7M]

Code No: R203241 **R20** SET -2

III B. Tech II Semester Regular Examinations, July -2023
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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)	Explain the functions of various layers in ISO-OSI reference model.	[7M]
	b)	Compare and contrast different topologies of the network.	[7M]
		(OR)	
2.	a)	With neat sketch explain Twisted pair cables, connectors of twisted pair cables with neat graph explain the performance of Twisted pair cables.	[7M]
	b)	Differentiate between OSI and TCP/IP reference models.	[7M]
		UNIT-II	
3.	a)	Explain the following error detection techniques : CRC and checksum	[7M]
	b)	What is the significance of data link layer? Explain the design issues of data link layer.	[7M]
		(OR)	
4.	a)	Describe the stop and wait protocol with neat sketch.	[7M]
	b)	What are the different types of error detection methods? Explain the CRC error detection technique using generator polynomial x^4+x^3+1 and data 11100011.	[7M]
		UNIT-III	
5.	a)	Explain briefly about the applications of FDM.	[7M]
	b)	Explain in detail about the synchronous time division multiplexing.	[7M]
		(OR)	
6.	a)	Discuss the MAC layer functions of IEEE 802.11.	[7M]
	b)	Explain about the Persistent and Non Persistent CSMA.	[7M]
		UNIT-IV	
7.	a)	With an example explain the shortest path routing algorithms used in computer networks.	[7M]
	b)	What are the general principles of congestion control? Explain.	[7M]
		(OR)	
8.	a)	Briefly explain IP addressing methods.	[7M]
	b)	In classful addressing how is an IP address in class A, Class B and Class C divided?	[7M]
		UNIT-V	
9.	a)	Discuss in detail about the connection establishment and release in TCP.	[7M]
	b)	Explain the structure of UDP Header format.	[7M]
		(OR)	
10.	a)	Discuss how simple mail transfer protocol (SMTP) works? Can multimedia messages be transmitted using SMTP? Discuss.	[7M]
	b)	Write short notes on email services of the application layer.	[7M]

Code No: R2032421 **R20** SET -3

III B. Tech II Semester Regular Examinations, July -2023
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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)	Explain about the coaxial cable with neat sketch	[7M]
	b)	Differentiate between TCP/IP reference model with ISO-OSI reference model.	[7M]
		(OR)	
2.	a)	Compare various types of networks used in computer networks.	[7M]
	b)	Explain the classification of unguided transmission media.	[7M]

UNIT-II

3.	a)	Is HDLC a bit or byte? Describe the frame format of HDLC.	[7M]
	b)	Explain about the one bit sliding window protocol.	[7M]
		(OR)	
4.	a)	What are various types of Error Detection methods? Explain about Cyclic Redundancy Check with suitable example.	[9M]
	b)	Explain about the Simplex Stop and wait protocol.	[5M]

UNIT-III

5.	a)	Describe ALOHA. Differentiate between pure Aloha and slotted Aloha.	[5M]
	b)	What are the different types of Fast Ethernet? Give their feature.	[9M]
		(OR)	
6.	a)	What are the advantages and disadvantages of Ethernet protocol?	[7M]
	b)	Explain about the code division multiple access protocol.	[7M]

UNIT-IV

7.	a)	Explain about the Link State routing algorithm with an example.	[7M]
	b)	What are the principles of congestion control? How to handle it?	[7M]
		(OR)	
8.	a)	Describe the significance of Internet Control Message Protocol.	[7M]
	b)	Explain about the token bucket algorithm for traffic shaping with neat sketch.	[7M]

UNIT-V

9.	a)	Describe the steps in connection establishment in TCP.	[7M]
	b)	What are the three functional components of an email system/ Explain them.	[7M]
		(OR)	
10.	a)	Elaborate various resource record types used in DNS.	[7M]
	b)	Explain the services and applications of UDP.	[7M]

Code No: R2032421 **R20** SET -4

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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 advantages of Fiber optic cables? Enumerate the functionalities of Fiber Optic Cables with a neat diagram.	[6M]
	b)	Explain about the OSI reference model with neat sketch.	[8M]
		(OR)	
2.	a)	Describe the classification of Microwave transmission.	[7M]
	b)	Explain about the different types of network topologies used in computer networks.	[7M]

UNIT-II

3.	a)	What is CRC? Discuss about CRC method for error detection with suitable example.	[7M]
	b)	Explain about the frame format of Point to Point protocol.	[7M]
		(OR)	
4.	a)	Explain about the Go-Back-N sliding window protocol also discuss its drawbacks.	[7M]
	b)	Elaborate the services provided by data link layer to network layer.	[7M]

UNIT-III

5.	a)	Explain why collision is an issue in a random-access protocol but not in controlled access or channelizing protocols.	[7M]
	b)	Compare and contrast between FDMA and TDMA.	[7M]
		(OR)	
6.	a)	Describe the different types of 10 Gigabit Ethernet and their compatible Fibers/Cables.	[7M]
	b)	Describe about the CSMA with Collision Detection.	[7M]

UNIT-IV

7.	a)	Differentiate between open loop and closed loop congestion control.	[7M]
	b)	Explain about the Address Resolution Protocol.	[7M]
		(OR)	
8.	a)	Discuss about count-to-infinity problem. How to overcome it?	[7M]
	b)	Explain about the Tunneling in Internet layer.	[7M]

UNIT-V

9.	a)	Explain about the HTTP request and response methods.	[7M]
	b)	What is DNS? Explain DNS structure for Internet.	[7M]
		(OR)	
10.	a)	Describe the modes of operation used in TELNET.	[7M]
	b)	How to control the congestion in TCP? Explain the steps in it.	[7M]