Code: 20A05501T

R20

B.Tech III Year I Semester (R20) Regular & Supplementary Examinations January 2024

COMPUTER NETWORKS

(Common to IT, CSE (IOT) and CSE)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	How do the layers of the Internet model correlate to the layers of the OSI model?	2M
	(b)	What are the three major classes of guided media?	2M
	(c)	What is the minimum Hamming distance?	2M
	(d)	What is the access method used by wireless LAN?	2M
	(e)	What are the salient features of IPv6?	2M
	(f)	What is the basis of classification for the four types of links defined by OSPF?	2M
	(g)	What is the maximum and minimum size of the TCP header?	2M
	(h)	Mention the functions of Transport layer.	2M
	(i)	Write short notes on WWW.	2M
	(j)	List any three Security services.	2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2		With a neat diagram, explain OSI reference model.	10M
		OR	
3	(a)	Compare circuit switching and packet switching.	5M
	(b)	With a neat diagram, discuss different transmission media.	5M
4	(a)	Explain Data link layer design issues in detail.	5M
	(b)	What is framing? Explain different types of framing protocols with their format.	5M
		OR	
5	(a)	List and discuss in detail about Error detection and Error correction techniques.	5M
	(b)	Illustrate sliding window protocol with an example.	5M
6	(a)	With neat diagrams, discuss in detail about ICMP.	5M
	(b)	Classify IP addresses.	5M
		OR	
7	(a)	Discuss in detail about the design issues of Network Layer.	5M
	(b)	Write about the packet forwarding and routing in the network layer.	5M
8		Explain the TCP Segment Header with diagram.	10M
		OR	
9	(a)	What is QoS? Explain the techniques to achieve QoS?	5M
	(b)	Draw UDP header and explain each field.	5M
10		Describe in detail about Email and its protocols.	10M
		OR	
11		Discuss in detail about Domain Name System.	10M

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Code: 20A05501Tc

R20

B.Tech III Year I Semester (R20) Regular & Supplementary Examinations January 2024

COMPUTER NETWORKS

(Common to AI&DS, CSE (AI) and CSE (AI&ML))

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	How do guided media differ from unguided media?	2M
	(b)	Compare and contrast a circuit-switched network and a packet-switched network.	2M
	(c)	How does a repeater extend the length of a LAN?	2M
	(d)	What's the difference between error detection and error correction techniques?	2M
	(e)	Find the NETID and the HOSTID of the following IP addresses 208.34.54.12.	2M
	(f)	List the classes in classful addressing	2M
	(g)	What is the QOS?	2M
	(h)	How does Frame Relay control congestion?	2M
	(i)	In electronic mail, what is MIME?	2M
	(j)	Why was there a need for DDNS?	2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2	(a)	Differentiate between TCP/IP and ISO/OSI model.	5M
	(b)	Name the four basic network topologies, and cite an advantage of each type.	5M
		OR	
3		What are the five layers in the Internet Protocol Stack? What are the principle responsibilities of each of these layers?	10M
4	(a)	Draw HDLC frame Format and explain each field.	5M
	(b)	Explain about Go Back N sliding window protocol.	5M
		OR	
5		A bit stream 10011101 is transmitted using the standard CRC method described in the text. The generators polynomial is x^3+1. Show the actual bit string transmitted suppose the thread bit from the left is inverted during transmission. Show that this error is detected at receivers end.	10M
6	(a)	Explain distance vector routing algorithm and discuss its limitations.	5M
	(b)	Discuss in detail about Link state routing algorithm.	5M
		OR	
7		Compare and contrast the fields in the main headers of IPv4 and IPv6. Make a table that shows the presence or absence of each field.	10M
8	(a)	Compare and contrast TCP and UDP.	5M
	(b)	Explain how token bucket algorithm is used in traffic shaping.	5M
		OR	
9	(a)	Draw TCP header and explain each field.	5M
	(b)	How are congestion control and quality of service related?	5M
10	(a)	Describe the structure and functions of E-mail protocol.	5M
	(b)	Illustrate how HTTP is used in web documents?	5M
		OR	
11		Discuss in detail about: (i) FTP, (ii) Telnet.	10M

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