



<b>Semester: Jan 2023 – May 2023</b>		
<b>Maximum Marks: 100</b>	<b>Examination: ESE Examination</b>	<b>Duration:3 Hrs.</b>
<b>Programme code: 01</b> <b>Programme: B. Tech</b>	<b>Class: TY</b>	<b>Semester: V(SVU 2020)</b>
<b>Name of the Constituent College:</b> <b>K. J. Somaiya College of Engineering</b>	<b>Name of the department: Computer Department</b>	
<b>Course Code: 116U01C502</b>	<b>Name of the Course: Computer Networks</b>	
<b>Instructions: 1)Draw neat diagrams 2) All questions are compulsory</b>		
<b>3) Assume suitable data wherever necessary</b>		

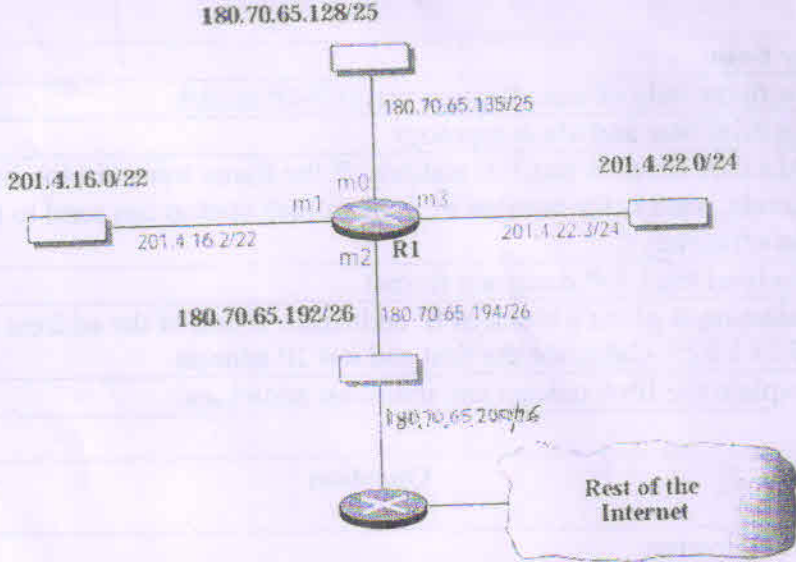
Que. No.	Question	Max. Marks
Q1	Solve any <b>Four</b>	<b>20</b>
i)	Explain with the help of neat diagram the TCP-IP model.	5
ii)	Explain in brief Star and Mesh topology	5
iii)	A pure ALOHA network has 100 stations. If the frame transmission time is 1 microseconds, what is the number of frame/s each station can send to achieve the maximum efficiency?	5
iv)	Explain in brief the UDP datagram format.	5
v)	An organization is given a block of IP addresses. If one of the address in the block is 172.17.15.12/23. Calculate the first and last IP address.	5
vi)	Briefly explain the IPv6 unicast and multicast addresses.	5

Que. No.	Question	Max. Marks
Q2 A	Solve the following	<b>10</b>
i)	What is Byte stuffing? Explain with the help of neat diagram.	5
ii)	The destination address in an Ethernet frame is 6A:30:10: 21:11:1A. Show how this address is sent out on the line.	5
	<b>OR</b>	
Q2 A	Explain with the help of neat diagram the working of Go-back-N ARQ. The efficiency of Go-back-N is superior to Selective Repeat in case of error free channel. Why?	10 (8+2)
Q2 B	Solve any <b>One</b>	<b>10</b>
i)	Explain with the help of neat diagram the working of CSMA/CD MAC	10
ii)	Explain in detail the CSMA/CA MAC mechanism used in wireless LANs.	10

Que. No.	Question	Max. Marks
Q3	Solve any <b>Two</b>	<b>20</b>
i)	Explain with the help of neat diagram IPv4 header format explaining the function of each field. An IPv4 packet has arrived with the first few hexadecimal digits as shown. 0x45000028000100000101 ... What is the size of header for this packet? How many hops can this packet travel before being dropped?	10 (8+2)
ii)	Explain in brief the ARP operation. Two hosts P and Q are on the same Ethernet network. Host P with IP address 192.168.15.21/24 and physical address B2:34:55:10:22:10 has a packet to send to	10 (4+6)



	another host Q with IP address 192.168.15.30/24 and physical address A4:6E:F4:59:83:AB (which is unknown to host P). Show with neat diagram, the ARP request and reply packets exchanged between them.	
iii)	What are different categories of ICMP messages? Explain in detail various Query-Response messages of ICMP.	10 (2+8)

Que. No.	Question	Max. Marks
Q4	Solve any <b>Two</b>	20
i)	<p>Enlist different forwarding techniques. The topology of a network is as shown below. Show the routing table of Router R1 and the forwarding process if packet arrives at R1 with destination address 180.70.65.140. (Note: Address in Bold is network address)</p> 	10 (2+8)
ii)	Explain in detail the working of Link state routing algorithm with the aid of neat diagrams.	10
iii)	Explain with the help of neat diagrams working of TCP connection establishment, data transfer and connection termination.	10

Que. No.	Question	Max. Marks
Q5	(Write notes / Short question type) on any <b>four</b>	20
i)	DHCP	5
ii)	FTP	5
iii)	HTTP	5
iv)	Telnet	5
v)	Congestion control mechanisms	5
vi)	NAT	5