

24.12.2022(E)


**SOMAIYA**  
 VIDYAVIHAR UNIVERSITY

Semester: August 2022 – December 2022		
Maximum Marks: 100	Examination: ESE Examination	Duration: 3 Hrs.
Programme code: 01	Class: TY	Semester: V (SVU 2020)
Programme: UG B.Tech in Computer Engg		
Name of the Constituent College: K. J. Somaiya College of Engineering		Name of the department: Computer
Course Code: 116U01C502	Name of the Course: Computer Networks	
Instructions: 1) Draw neat diagrams. 2) All questions are compulsory		
3) Assume suitable data wherever necessary		

Que. No.	Question	Max. Marks
Q1	Solve any Four	20
i)	Discuss any 5 design issues for OSI layered architecture of data communication.	5
ii)	Explain following Link layer addressing scheme with example in IPv6 addressing: (Any One) a. Mapping EUI-64 b. Ethernet MAC address	5
iii)	Explain Count-to-infinity problem in Distance Vector Algorithm and one solution for the same.	5
iv)	Draw general frame structure of ICMP messages and explain Redirection message with help of diagram.	5
v)	Explain Leaky Bucket algorithm and Token Bucket algorithm.	5
vi)	Differentiate between Distance Vector and Link state Routing Algorithms (5 Points)	5

Que. No.	Question	Max. Marks
Q2 A	Solve the following	10
i)	Explain all fields of IEEE 802.3 Frame Structure with the help of neat diagram	5
ii)	Discuss about Throughput and vulnerable time of slotted Aloha with help of neat diagram.	5
<b>OR</b>		
Q2 A	With the help of following terms, explain working of CSMA/CA: a. Interframe Spacing b. Contention Window c. Acknowledgements	10
Q2 B	Solve any One	10
i)	Explain working of Selective Repeat ARQ.	10
ii)	Explain CDMA with the help of an example and discuss use of Walsh table.	10

Que. No.	Question	Max. Marks
Q3	Solve any Two	20
i)	What is DVMRP. Explain step wise working of DVMRP protocol.	10
ii)	Consider sending a 2400-byte datagram into a link that has a MTU of 700 bytes. Suppose the original datagram is stamped with identification number 422. How many fragments are generated? Draw the IP header for all the fragments generated with the values in the various fields in the IP datagram(s) generated related to the fragmentation.	10
iii)	A host A with IP address 130.23.3.20 and physical address AEBD12345678 has a packet to send to another host B with IP address 130.23.43.25 and physical address A1B2C3D46789. The two hosts are on the same network. Show the ARP request and reply packets encapsulated in ethernet frames.	10

Que. No.	Question	Max. Marks
Q4	Solve any Two	20
i)	Explain UDP checksum Calculation with the help of an example.	10
ii)	Explain Congestion control in TCP.	10
iii)	Explain state transition diagram of TCP.	10

Que. No.	Question	Max. Marks
Q5	(Write notes / Short question type) on any four	20
i)	HTTP	5
ii)	TCP Timers	5
iii)	DNS	5
iv)	DHCP	5
v)	NAT	5
vi)	Telnet	5