Date : 26-05-22

K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22

(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

April – May 2022

(B.Tech) Program: Information Technology

Examination: SY   Semester: IV

Course Code: 1UITC402 and Course Name: Computer Network & Network Design
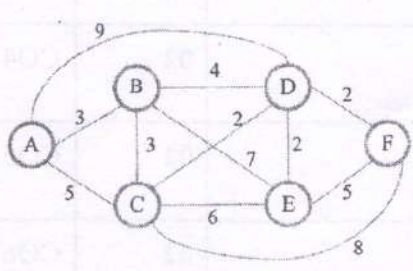
Duration: 03 Hours   Max. Marks: 60

Instructions:

(1) All questions are compulsory.

(2) Draw neat diagrams wherever applicable.

(3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	**Solve any six questions out of eight:**	**12**		
i)	Describe the functionalities of Data Link Layer.	02	CO1	Understand
ii)	Define ALOHA and Slotted ALOHA.	02	CO2	Understand
iii)	Explain different classes of IP addresses.	02	CO3	Understand
iv)	Describe TCP handshaking signal with diagram.	02	CO4	Understand
v)	Define functions of application layers.	02	CO5	Understand
vi)	Describe the need of VPN.	02	CO6	Understand

vii)	Compare connectionless and connection-oriented services.	02	CO1	Understand
viii)	Describe Link State Routing.	02	CO3	Understand
Q.2	**Solve any four questions out of six.**	**16**		
i)	Describe PAN, LAN, MAN and WAN with range and example.	04	CO1	Understand
ii)	Categorize and explain the different transmission media in networking.	04	CO2	Understand
iii)	Analyze ARP header with ARP request and ARP reply header.	04	CO3	Analyze
iv)	Describe the different protocol scenario for establishing a connection using 3 way handshakes.	04	CO4	Understand
V)	Describe the functions of Presentation Layer.	04	CO5	Understand
Vi)	Apply the steps of VLAN.	04	CO6	Apply
Q.3	**Solve any two questions out of three.**	**16**		
i)	Describe OSI Reference Model by explaining services of every layer.	08	CO1	Understand
ii)	Explain and analyze Dijkstra's Algorithm for finding shortest path for below network from source node A to destination node F.	08	CO3	Analyze

iii)	Define carrier sense. Describe any one carrier sense protocol.	08	CO2	Understand
Q.4	**Solve any two questions out of three.**	**16**		
i)	Describe different causes of congestion and describe how token bucket algorithm provides the solution.	08	CO4	Understand
ii)	Describe Lossy Compression and Lossless Compression with examples.	08	CO5	Understand
iii)	Design the network of industry w.r.t to following guidelines: (a) Networking Devices (b) IP Addressing (c) Protocols to be used (d) Services to be used	08	CO6	Apply