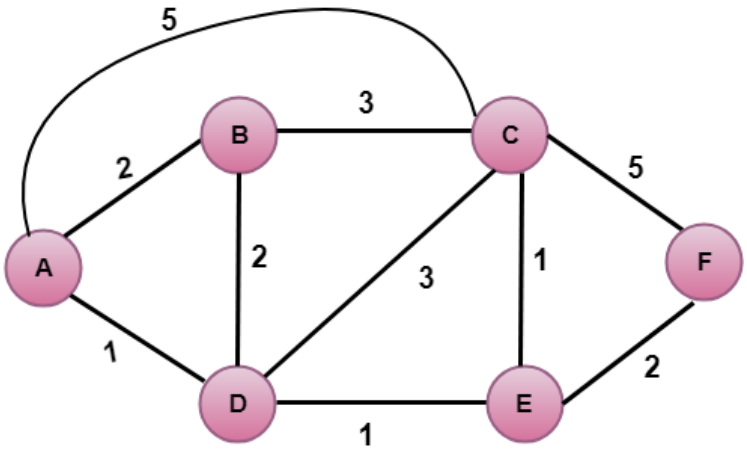
DEPARTMENT OF IT::VRSEC
20IT5301: Computer Networks
A.Y. 2022-23

INFORMATION TECHNOLOGY

Assignment -2 Questions

S.No	Question	BTL	CO
1	Consider the below network with routers and links from one router to another router along with costs, in which each router shares its neighborhood's knowledge with every other router in the internetwork. Each router in the network understands the network topology then makes a routing table depend on this topology. Based on these features construct forwarding table for router A which includes optimal path and cost to all the other routers for the given network. 	K3	4
2	Differentiate Virtual circuits and datagram networks	K2	3
3	Consider a datagram network using 32-bit host addresses. Suppose a router has four links, numbered 0 through 3, and packets are to be forwarded to the link interfaces as follows: Destination Address Range — Link Interface 11100000 00000000 00000000 00000000 through 11100000 00111111 11111111 11111111 — 0 11100000 01000000 00000000 00000000 through 11100000 01000000 11111111 11111111 — 1 11100000 01000001 00000000 00000000 through 11100001 01111111 11111111 11111111 — 2 Otherwise — 3 Construct a forwarding table that has five entries, uses Prefix matching, and forwards packets to the correct link interfaces.	K3	3

4	Describe IPv4 datagram format with neat diagram	K2	3
5	Suppose Host A sends two TCP segments back to back to Host B over a TCP connection. The first segment has sequence number 90; the second has sequence number 110. a. Infer how much data is in the first segment? b. Suppose that the first segment is lost but the second segment arrives at B. In the acknowledgment that Host B sends to Host A, what will be the acknowledgment number?	K4	3
6	Assume that the application in Host A is sending data into the connection (for example, passing data to the transport-level protocol via a socket) at an average rate of in bytes/sec. The amount of router buffering is assumed to be finite. A consequence of this real-world assumption is that packets will be dropped when arriving to an alreadyfull buffer and assume that each connection is reliable. If a packet containing a transport-level segment is dropped at the router, the sender will eventually retransmit it. The rate at which the transport layer sends segments (containing original data and retransmitted data) into the network will be denoted in bytes/sec. It is sometimes referred to as the offered load to the network. Explain this scenario with cost and cause of congestion.	**K2**	**3**