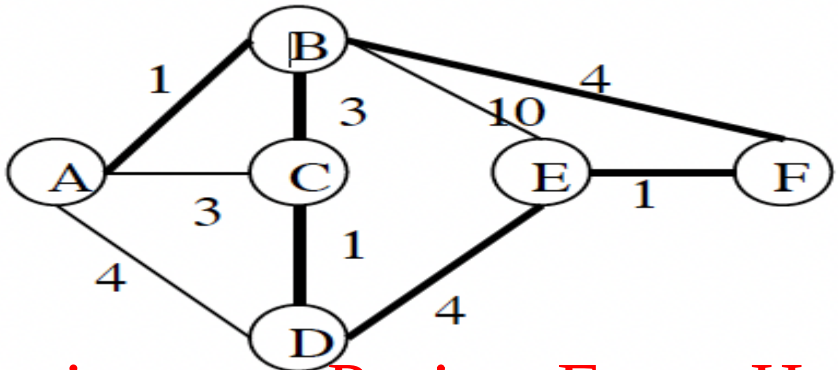
Network Control Plane - Answers

Q1)

(a) The shortest path routes from F to all the destinations have been shown as thick lines in Figure 1 in the question. The operation of Dijkstra's algorithm is shown in the following table:



Step	N	D(A), p(A)	D(B), p(B)	D(C), p(C)	D(D), p(D)	D(E), p(E)
0	F	∞	4,F	∞	∞	1.F
1	FE	∞	4.F	∞	5,E	
2	FEB	5,B		7,B	5,E	
3	FEBD	5,B		6,D		
4	FEBDA			6,D		
5	FEBDAC					

(b) The destination table for Distance Vector in B is shown below:

Cost to

A	C	D	E	F
1	3	4	5	4

Q2. Consider the network shown in Figure 2 and assume that each node initially knows the costs to each of its neighbours. Consider the distance vector algorithm and show the distance table entries at node z.

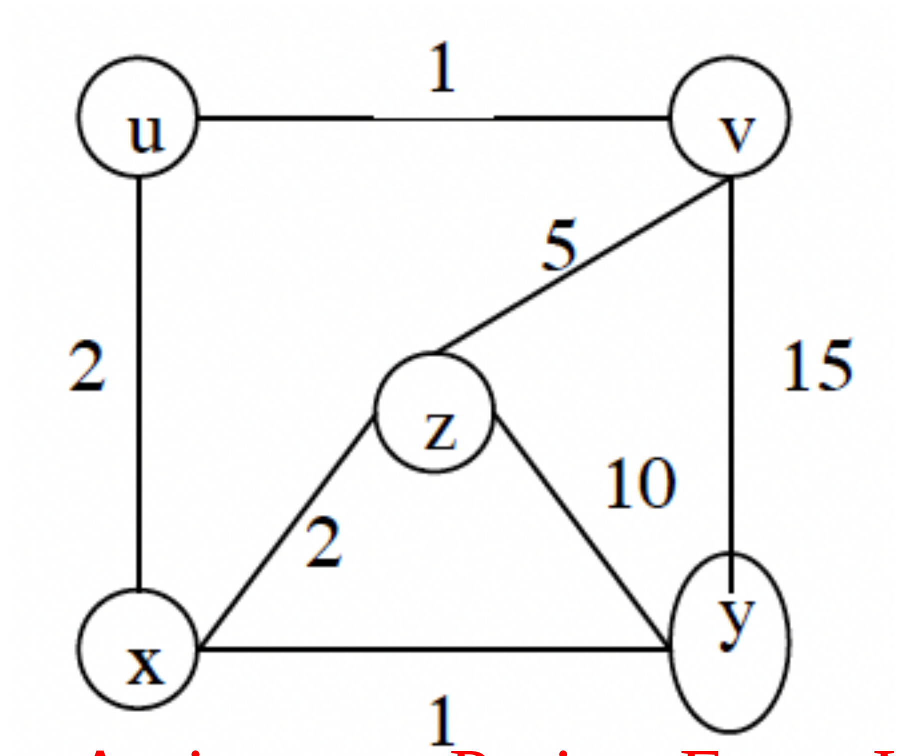


Figure 2 Network topology for Q8

Answer: The distance table in z is:

	Via			
		V	X	Y
To	U	6	4	13
	V	5	5	14
	X	8	2	11
	Y	9	3	10

Q3. Consider the count-to-infinity problem in the distance vector routing. Will this problem occur if we decrease the cost of a link? How about if we connect two nodes which do not have a link?

Answer: No, decreasing the cost of a link would not result in the count-to-infinity problem. Connecting two nodes is equivalent to decreasing the link weight from infinite to a finite value.