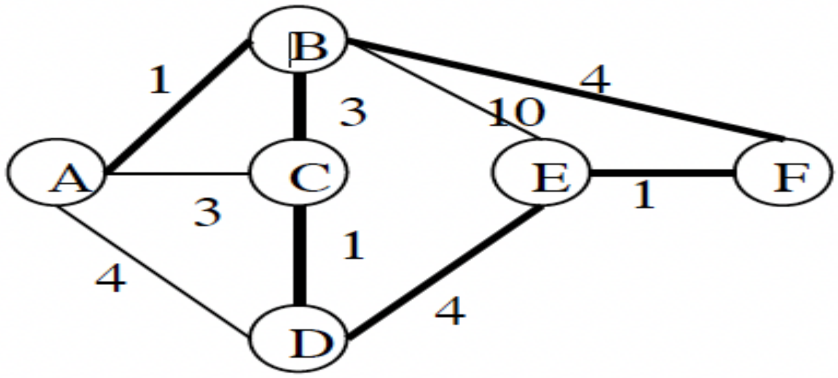
Network Control Plane - Answers

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.

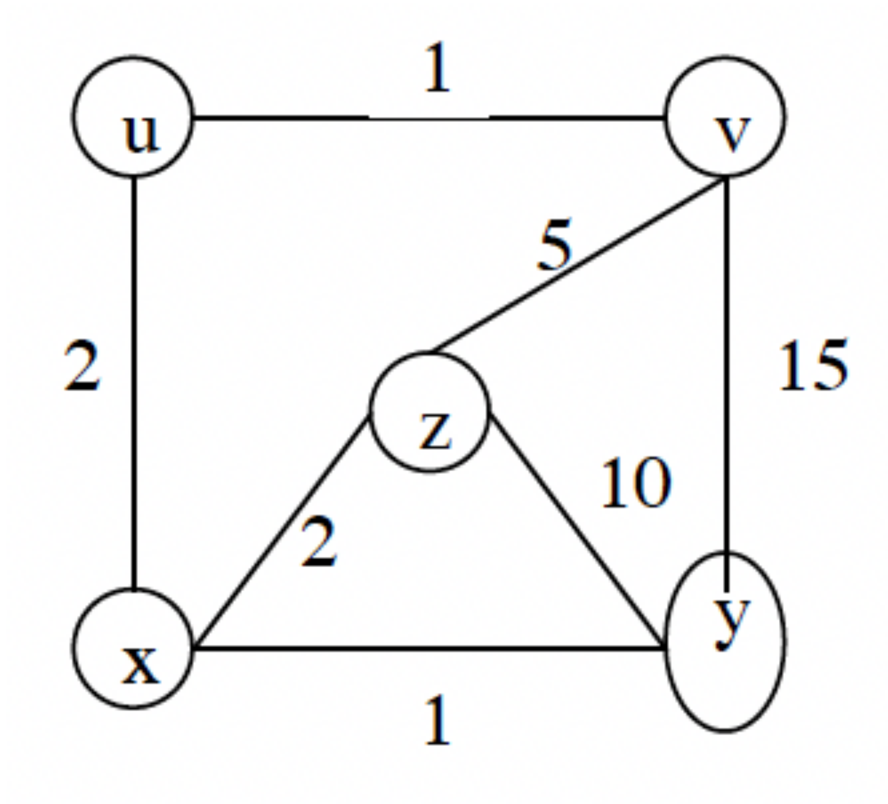


Figure 2 Network topology for Q8

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.