HW5 Xueyin Wang

1. The fourth fragment will be discarded as well. These four fragments are of a single IP packet. To keep the fourth fragment is meaningless. Since it is time out, this packet would be re-send. The server side will receive all of the fragments again. Hence, the fourth fragment will be discarded.

2. Routers have IP address. The number of links that the router connects to determines the number of the IP address that a router needs.

3.

step	N'	D(Y),P(Y)	D(V),P(V)	D(W),P(W)	D(U),P(U)	D(T),P(T)	D(Z),P(Z)	D(S),P(S)
0	X	6,X	3,X	6,X	∞	∞	∞	∞
1	XV	4,V		6,X	6,V	7,V	∞	∞
2	XVY			6,X	6,V	7,V	16,Y	∞
3	XVYW				6,V	7,V	16,Y	∞
4	XVYWU					7,V	16,Y	10,U
5	XVYWUT						12,T	8,T
6	XVYWUTS						12,T	
	XVYWUTSZ							

4. (a)
No. Link-state algorithm won't suffer from the "count-to-infinity" problem. Link-state algorithm, not like distance-vector algorithm, it updates the whole global view by re-running dijkstra algorithm. There's not neighbour nodes communication which could lead to routing loops. Hence, the count-to-infinity problem will not happen.

4. (b)
Poisoned reverse is not required in link-state networks. It might be useful but it is not required. Link-state algorithm requires global view in each node so that there is no need to gossip with connected neighbours. Poisoned reverse is helpful in updating costs or detecting failure. It may improve performance but it is not required in link-state algorithm.