Cairo University
Faculty of Engineering
Computer Department

Computer Networks

Fall 2022

Sheet 6-solution

1. Use the Dijkstra algorithm to find the shortest path from A to E in the network in Fig.1, Show the set of the weight and the parent node at each node after each step.

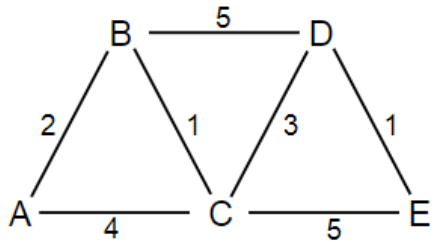


Figure 1

	A	B	C	D	E
A	0,-	0,-	0,-	0,-	0,-
B	2,A	2,A	2,A	2,A	2,A
C	4,A	3,B	3,B	3,B	3,B
D	INF	7,B	6,C	6,C	6,C
E	INF	INF	8,C	7,D	7,D

2. Consider the network of Fig.2. Suppose that it uses flooding as the routing algorithm. If a packet sent by A to D has a maximum hop count of 3, list all the routes it will use to deliver the message from A to D. Also tell how many hops worth of bandwidth it consumes.

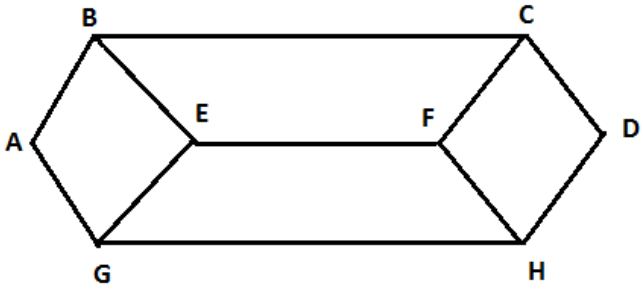
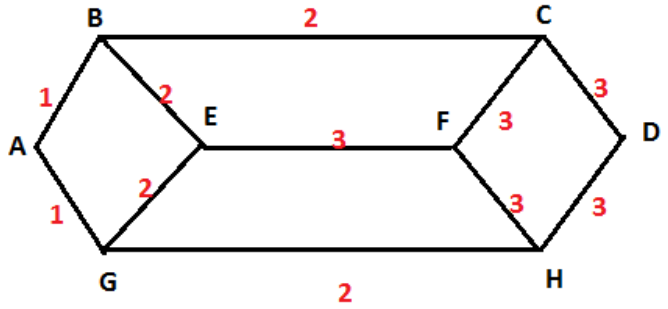


Figure 2

Solution:



Routes: A-B-C-D , A-G-H-D

#hops=14 { one for each link (11) + 2 for link E-to-F as E got two messages ne from B and one from G + one extra message from E to B for the message got from G + one extra message from E to G for the message got from B}