3.

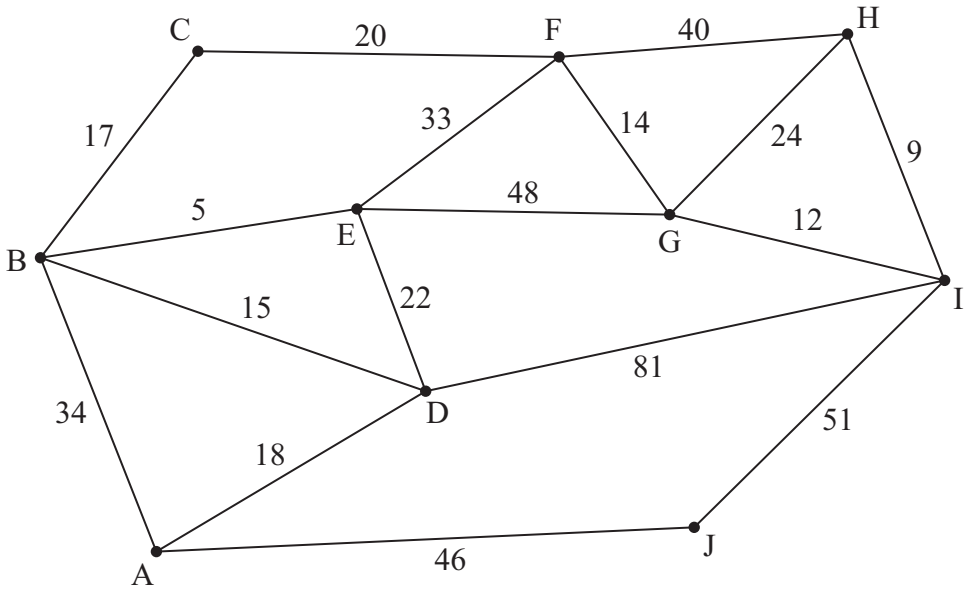


Figure 2

[*The total length of the network is 489*]

Figure 2 represents a network of cycle paths between ten locations, A, B, C. D, E, F, G, H, I and J. The number on each arc is the time, in minutes, to cycle between the corresponding locations.

(a) State, with a reason, whether the network is Eulerian, semi-Eulerian or neither.

(1)

(b) (i) Use Dijkstra's algorithm to determine the shortest time to cycle from A to H

(ii) State the quickest cycle route from A to H

(6)

The paths from A to B, A to J and B to C become blocked and cannot be used.

(c) Determine the increase in the shortest time to cycle from A to H. You must justify your answer.

(2)

(Total for Question 3 is 9 marks)