3.

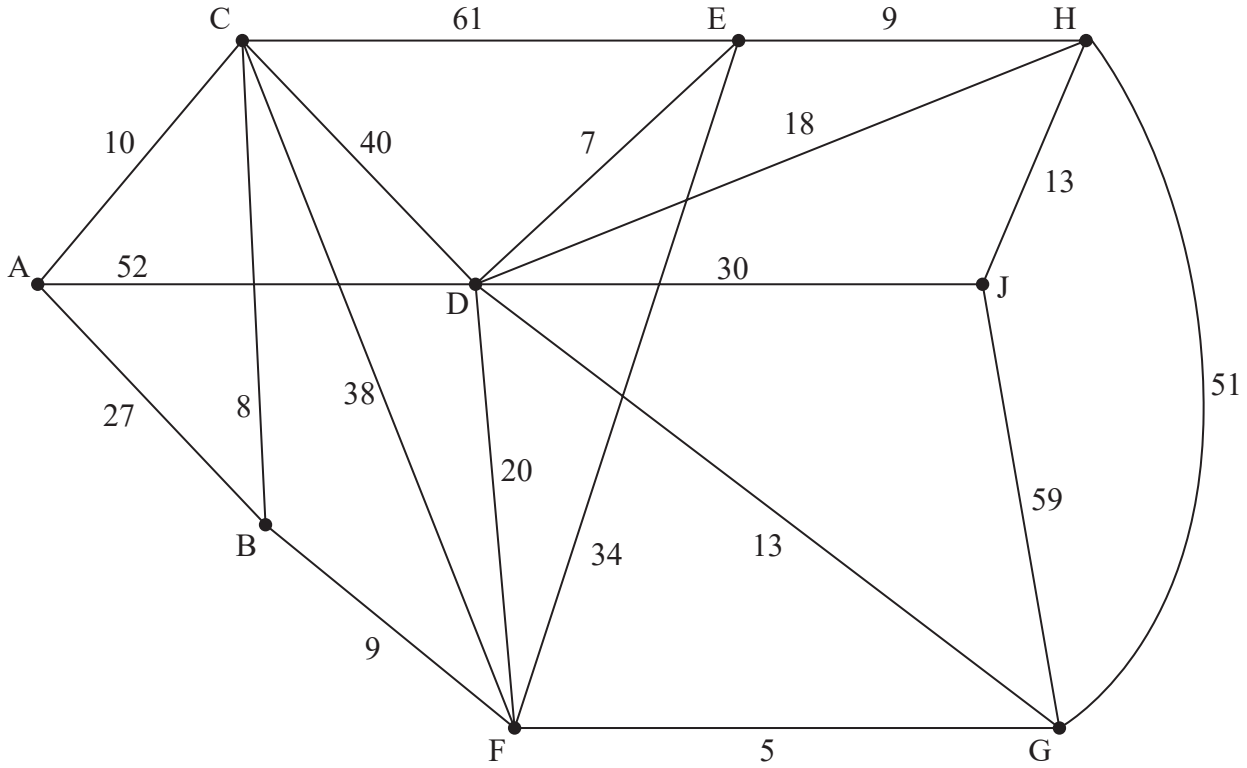


Figure 2

Figure 2 models a network of tracks between nine ranger stations, A, B, C, D, E, F, G, H and J, in a forest. The number on each edge gives the time, in minutes, to travel along the corresponding track. The forest ranger wishes to travel from A to J as quickly as possible.

(a) Use Dijkstra's algorithm to find the shortest time needed to travel from A to J.

State the quickest route.

(6)

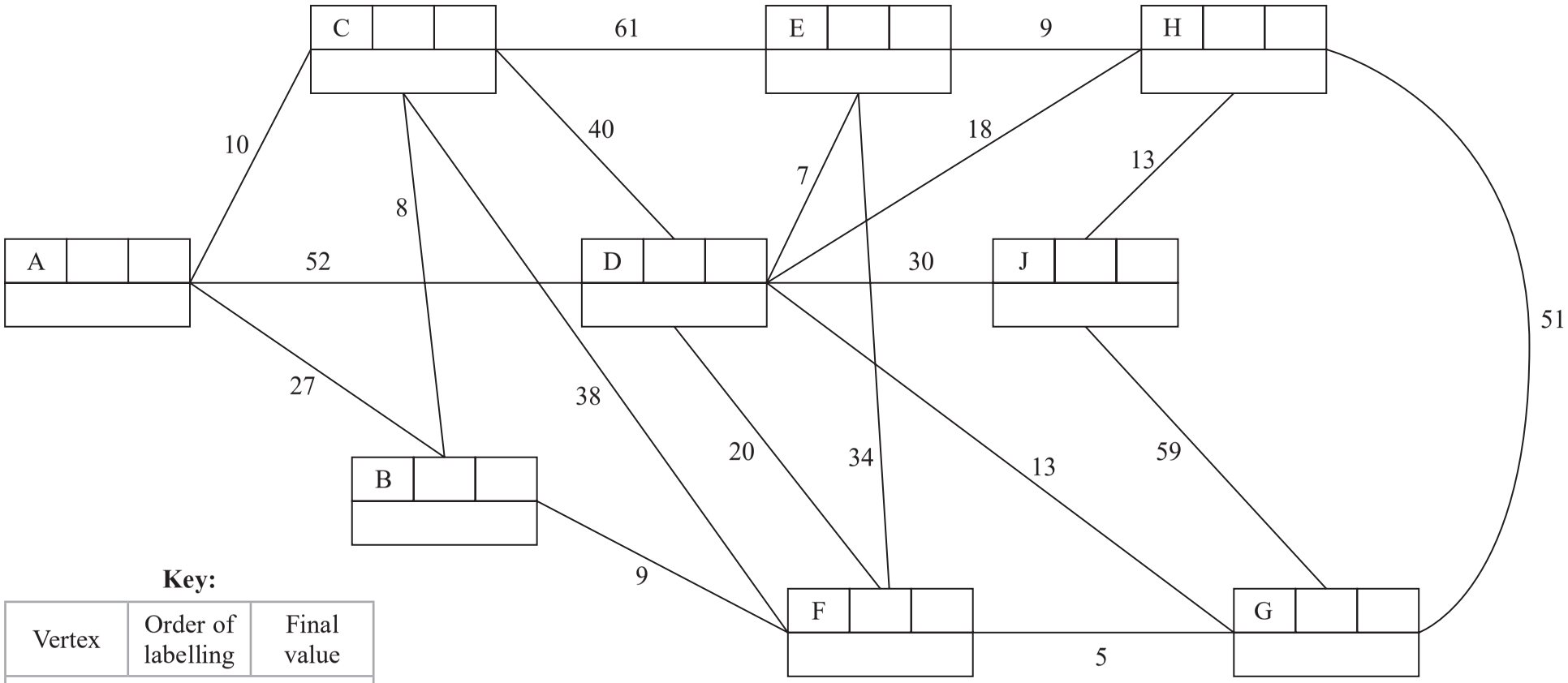
(b) Hence determine the weight of the minimum spanning tree for the network given in Figure 2. Give a reason for your answer.

You do not need to find the minimum spanning tree.

(2)

(Total for Question 3 is 8 marks)

3.



Key:

Vertex	Order of labelling	Final value
Working values		

Shortest time to travel from A to J: _____

Quickest route from A to J: _____

P 7 4 3 0 6 A 0 8 2 0

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 3 continued

(Total for Question 3 is 8 marks)