3.

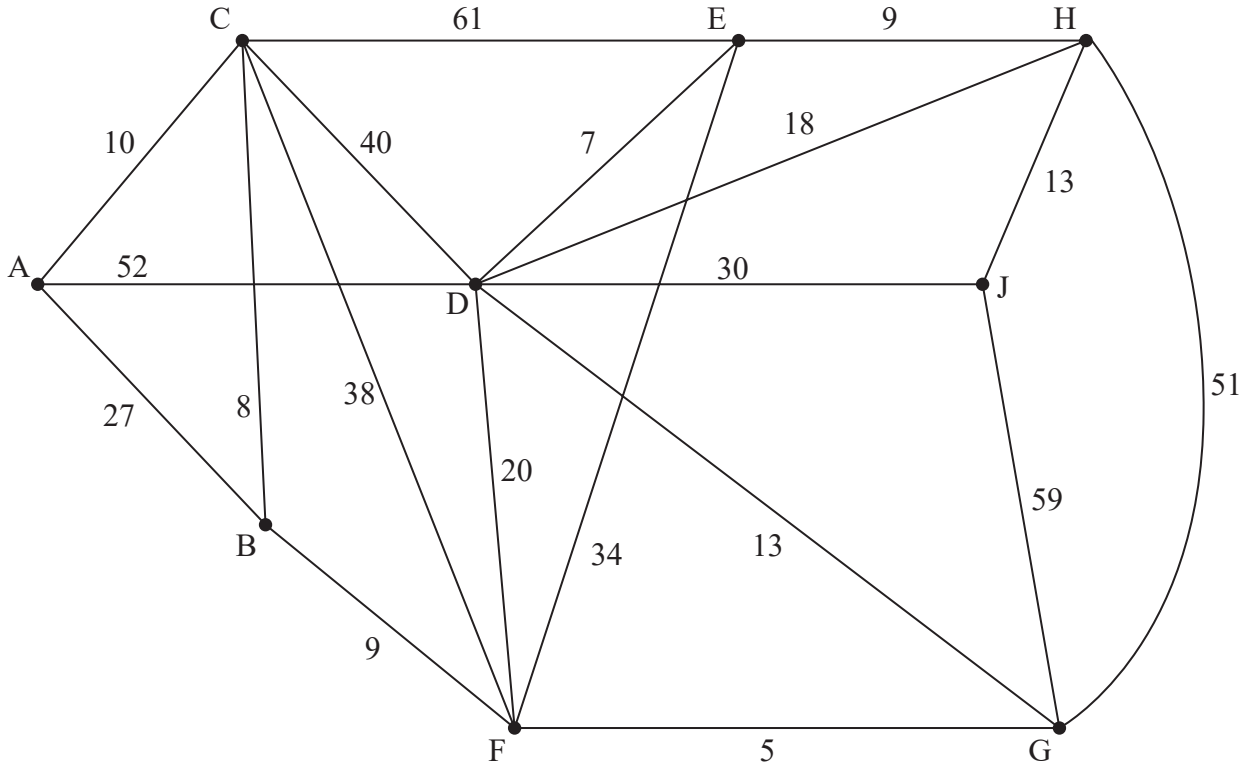


Figure 2

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)