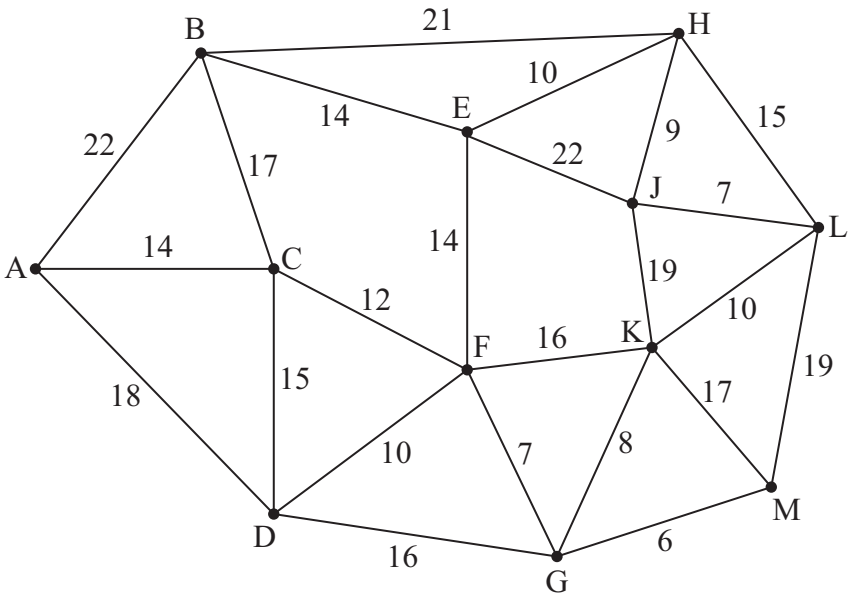
6:



[*The total length of the network is 338*]

Figure 2

Figure 2 represents a network of roads connecting a group of villages. The number on each arc is the length, in km, of the corresponding road.

Bolin needs to inspect the network in Figure 2. He must travel along each road at least once, minimising the length of his route.

Bolin's route must **start** at A and **finish** at J.

(a) Determine the length of Bolin's route. You must make your method clear and state the roads which need to be repeated.

(5)

A new road is constructed from F to J which has length 18 km. Bolin must inspect the changed network, starting at A and finishing at J. He must travel along each road at least once, minimising the length of his route.

(b) Determine the change to the length of Bolin's route.

(2)

(Total for Question 6 is 7 marks)