KRUSKAL'S ALGORITHM

1.

	A	*B*	*C*	*D*	*E*	*F*
A	–	7	3	–	8	11
B	7	–	4	2	–	7
C	3	4	–	5	9	–
D	–	2	5	–	6	3
E	8	–	9	6	–	–
F	11	7	–	3	–	–

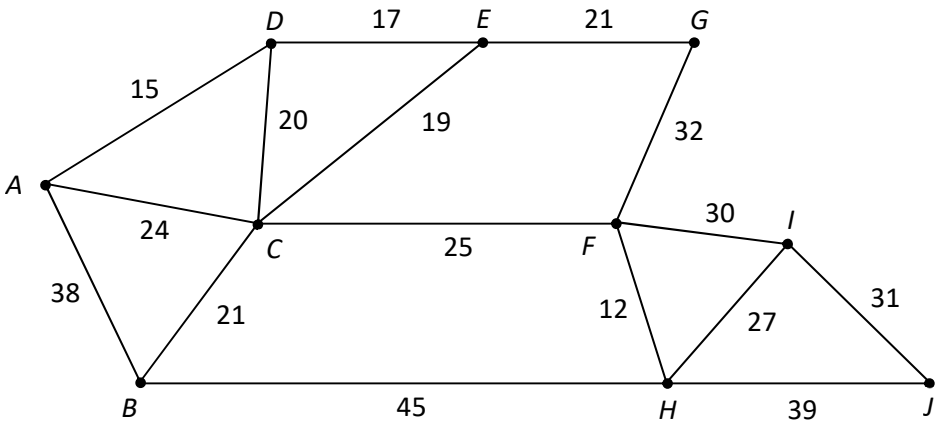
The matrix represents a network of roads between six villages *A*, *B*, *C*, *D*, *E* and *F*. The value in each cell represents the distance, in km, along these roads.

(*a*) Show this information as a network. **(2 marks)**

(*b*) Use Kruskal's algorithm to determine the minimum spanning tree. State the order in which you include the arcs and the length of the minimum spanning tree. Draw the minimum spanning tree.

(4 marks)

2.



The network above shows the distances, in metres, between 10 wildlife observation points. The observation points are to be linked by footpaths, to form a network along the arcs indicated, using the least possible total length.

Find a minimum spanning tree for the network in Figure 2, showing clearly the order in which you selected the arcs for your tree, using Kruskal's algorithm.

(4 marks)