1. a) Use Kruskal’s Algorithm to find the minimum-cost spanning tree in the graph below:

b) Is this spanning tree a subgraph of any Hamiltonian circuit on this graph? Why or why not?

2. Find the optimal coloring of the following map by following the given steps

   a) Draw the dual graph for the given map

   b) Use the greedy algorithm for graph coloring to find an optimal coloring for the dual graph
   c) Translate this coloring back to the graph above.