**Problem 1**

The traversal steps will be:

1. G -> E -> B -> A



1. Back track to B
2. B -> C -> F



1. Back track to F->C -> B -> E
2. E -> D



All nodes are visited now, the sequence of nodes visited is:

G -> E -> B -> A -> B -> C -> F -> C -> B -> E -> D

The edge classification is show below



**Problem 2**

1. Explore node one edge away from I



1. Explore node two edge away from I



1. Explore nodes 3 edges away from I



1. Explore nodes 4 edges away from I



**Problem 3**

**Part 1**

1. Initial graph, all nodes have D value as ∞, except for S



1. S comes into C, edges (S,a), (S,b) and (S,c) get relaxed



1. b comes into C as it has the min D, edges (b,d), (b,a) and (b,c) are relaxed



1. a comes into C as it has min D, no edges to relax



1. d comes into C as it has min D, no edge relaxation



1. c comes into C, since it is the min D, relax edge (c,e)



1. Finally, the last remaining node e comes into the cloud



**Part 2**

The shortest path from S to every node:

1. b : S -> b
2. c : S -> b -> c
3. d : S -> b -> d
4. a : S -> b -> a
5. e : S -> b -> c -> e

**Problem 4**

**Part 1**

1. Initial graph



1. The node a is pulled into the cloud, the minimum weight edge is (a,c)



1. The node c gets pulled into the cloud and the edge (c,b) has the minimum weight



1. The node b gets pulled into the cloud and the minimum weight edge (b,d) is explored



1. The node d gets pulled into the cloud and the edge (d,f) is explored



1. The node f is pulled into the cloud and the min weight edge node (f,e) is explored



1. The node e is pulled into the cloud and the min weight edge (f,g) is explored



1. The final node g is pulled into the cloud



**Part 2**

The minimum spanning tree generated is show below:

