**1**

**A**

**B**

**C**

**D**

**2**

**3**

**4**

**5**

**6**

**7**

**8**

**9**

**E**

**G**

**J**

**K**

**1) Consider the Tree below: (20 points)**

2 points each

**F**

**H**

**I**

1. List the order in which the nodes are visited to depth first search for Node 5
2. List the order in which the nodes are visited to breadth first search for Node 5
3. Which method looked at fewer nodes? Why?
4. List the order in which the nodes are visited to depth first search for Node D
5. List the order in which the nodes are visited to breadth first search for Node D
6. Which method looked at fewer nodes? Why?
7. List the order in which the nodes are visited to depth first search for Node K
8. List the order in which the nodes are visited to breadth first search for Node K
9. Which method looked at fewer nodes? Why?
10. Which node is the worst node for breadth first search to locate? Why?

**2) Consider the Graph below: (20 points)**

**5 points each**

**A**

**6**

**H=5**

**H**

**4**

**3**

**S**

**3**

**D**

**6**

**4**

**G**

**B**

**2**

**E**

**H=4**

**12**

**H=3**

**H=0**

**H=5**

**H=5**

**Using the graph above**

1. **Solve using greedy search starting at Node S and ending at Node G**
2. **Solve using A\* search starting at Node S and ending at Node G**
3. **What is the optimal path starting at Node S and ending at Node G?**
4. **Does A\* locate the optimal path starting at Node S and ending at Node G? Why or why not?**