HackerRank For Work

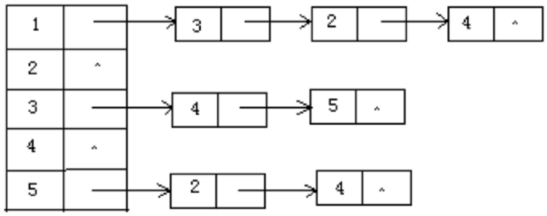
Spring_2018_INFO6205_Se... 30 minutes

Question - 1

SCORE: **20 points**

DFS & BFS

Given the following digraph's adjacency-lists, starting from Vertex 1, the DFS and BFS results are:



- DFS: 14352 BFS: 13254
- DFS: 14325 BFS: 12345
- DFS: 13452 BFS: 13245
- DFS: 13425 BFS: 13254

Question - 2

SCORE: **20 points**

Topological Order

The Digraph G has the following set of directed edges:
E = {<1, 2>, <2, 3>, <1, 4>, <4, 2>, <4, 3>}
The topological order of G is:

- 1423
- 1342
- 3241
- 2431

Question - 3

SCORE: **20 points**

Classroom question

Pick the correct numbers from the whiteboard

- 9
- 10
- 30
- 41
- 66

- [x] 80
- [ ] 84

Question - 4

SCORE: **20 points**

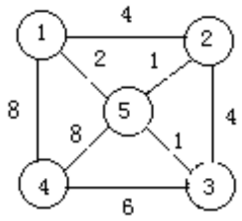
Undirected Graph

If Undirected Graph has V vertices and E edges:
(1) the time complexity for DFS & BFS using adjacency matrix is: _____
(2) the time complexity for DFS & BFS using adjacency lists is: _____

Question - 5

SCORE: **20 points**

Minimum Spanning Tree



This is undirected graph G. Please answer:
(1) The set of edges in G's MST
(2) The weight of edges in G's MST

Question - 6

SCORE: **20 points**

Minimum Spanning Tree

Graph G's set of vertices is: V = {1, 2, 3, 4, 5, 6, 7}. Its set of edges is: E = {(1, 2)3, (1, 3)5, (1, 4)8, (2, 5)10, (2, 3)6, (3, 4)15, (3, 5)12, (3, 6)9, (4, 6)4, (4, 7)20, (5, 6)18, (6, 7)25};
Using Kruskal's Algorithm, which is the correct order of edges in its MST?

- [ ] (1, 2), (4, 6), (2, 3), (2, 5), (5, 6), (4, 7)
- [x] (1, 2), (4, 6), (1, 3), (1, 4), (2, 5), (4, 7)
- [ ] (1, 2), (1, 3), (3, 6), (4, 6), (3, 5), (4, 7)
- [ ] (1, 2), (2, 3), (4, 6), (3, 6), (2, 5), (4, 7)