Started on	Saturday, 21 May 2022, 4:15 PM
State	Finished
Completed on	Saturday, 21 May 2022, 4:35 PM
Time taken	19 mins 57 secs
Marks	24.00/26.00
Grade	**92.31** out of 100.00

Question **1**

Complete

Mark 1.00 out of 1.00

Imagine following algorithm as a set of instructions - 1. enqueue the first node, 2. set it as visited, 3. dequeue node A to be able to process it, 4. visit all the neighbors (in this case children, if a node is unvisited then enqueue it). What is the name of this algorithm

- a. BFS
- b. BST in-order traversal
- c. BST pre-order traversal
- d. Heapsort
- e. DFS

Question **2**

Complete

Mark 1.00 out of 1.00

What is the number of edges present in a complete graph having n vertices?

- a. (n*(n-1)) divided to 2
- b. n
- c. (n*(n+1)) divided to 2
- d. Given information is insufficient

Question **3**

Complete

Mark 1.00 out of 1.00

A graph cannot be applied to

- a. Solve maximum flow problem
- b. Make web crawlers
- c. Implement spanning trees
- d. Find the shortest path algorithm
- e. Find the minimum element

Question **4**

Complete

Mark 1.00 out of 1.00

Graph traversal is different from a tree traversal, because

- a. trees have root
- b. trees are not connected
- c. graphs may have loops
- d. None of these

Question **5**

Complete

Mark 1.00 out of 1.00

In an adjacency matrix constructed out of the vertices of the graph: the A(i, j) value in the matrix is 1 if there is a connection between node i and node j, otherwise A(I, j) is 0.

- a. Disagree
- b. Agree

Question **6**

Complete

Mark 1.00 out of 1.00

The running time complexity of DFS (Depth-first search) traversal algorithm is

- a. O(logV*logE), where V is the number of vertices and E is the number of edges
- b. O(V*E), where V is the number of vertices and E is the number of edges
- c. O(V+E), where V is the number of vertices and E is the number of edges
- d. O(logV+logE), where V is the number of vertices and E is the number of edges

Question **7**

Complete

Mark 1.00 out of 1.00

DFS algorithm is NOT useful for the following:

- a. Kosaraju algorithm for finding connected components
- b. Topological ordering
- c. Performing heapsort
- d. Detecting cycles

Question **8**

Complete

Mark 1.00 out of 1.00

A graph is a mathematical abstraction which includes vertices also called as nodes and edges also called as links

- a. Agree
- b. Disagree

Question **9**

Complete

Mark 1.00 out of 1.00

In a simple graph, the number of edges is equal to twice the sum of the degrees of the vertices

- a. Disagree
- b. Agree

Question **10**

Complete

Mark 0.00 out of 1.00

Lets say that you have a graph with A, B, C, D, E vertices, and following adjacency lists A(B, C), B(D), D(E). What will be the result of DFS algorithm on this graph, if the starting node is A

- a. A, C, B, D, E
- b. A, E, B, C, D
- c. A, B, C, D, E
- d. A, B, D, E, C
- e. B, A, C, D, E

Question **11**

Complete

Mark 1.00 out of 1.00

The running time complexity of BFS (Breadth-first search) traversal algorithm is

- a. O(logV+logE), where V is the number of vertices and E is the number of edges
- b. O(V*E), where V is the number of vertices and E is the number of edges
- c. O(logV*logE), where V is the number of vertices and E is the number of edges
- d. O(V+E), where V is the number of vertices and E is the number of edges

Question **12**

Complete

Mark 1.00 out of 1.00

Imagine following algorithm as a set of instructions and it explores as far as possible along each branch before backtracking, so you visit every node exactly once

- a. BST pre-order traversal
- b. BFS
- c. BST in-order traversal
- d. DFS
- e. Heapsort

Question **13**

Complete

Mark 1.00 out of 1.00

Which algorithm can be implemented with recursion as well as with iteration?

- a. BFS (Breadth-first search)
- b. DFS (Depth-first search)

Question **14**

Complete

Mark 1.00 out of 1.00

Depth-first search uses stack as an abstract data type

- a. Agree
- b. Disagree

Question **15**

Complete

Mark 1.00 out of 1.00

In a graph, in order to go from node A to node B, there is only one possible way

- a. Disagree
- b. Agree

Question **16**

Complete

Mark 1.00 out of 1.00

There are two main ways to represent a graph in programming languages which one in the list is not the appropriate one

- a. Adjacency matrixes
- b. Keys-value representation
- c. Edge-list representation

Question **17**

Complete

Mark 0.00 out of 1.00

A graph is a tree only if graph is

- a. Completely connected
- b. Undirected graph
- c. Contains no cycles
- d. Planar
- e. Directed graph

Question **18**

Complete

Mark 1.00 out of 1.00

What is the difference between directed and undirected graph

- a. Directed graph uses less memory comparing with undirected graphs
- b. Directed graph has directions for each edge comparing with undirected graphs
- c. There is no difference

Question **19**

Complete

Mark 1.00 out of 1.00

Breadth-first search uses stack as an abstract data type

- a. Disagree
- b. Agree

Question **20**

Complete

Mark 1.00 out of 1.00

What is the aim of BFS (Breadth-first search) and DFS (Depth-first search)?

- a. Visit every single node in a graph
- b. Calculate the distances between nodes with these algorithms
- c. Sort the nodes in a given graph

Question **21**

Complete

Mark 1.00 out of 1.00

In an adjacency matrix constructed out of the vertices of the graph: the A(i, j) value in the matrix is 0 if there is a connection between node i and node j, otherwise A(I, j) is 1.

- a. Agree
- b. Disagree

Question **22**

Complete

Mark 1.00 out of 1.00

Lets say that you have a graph with A, B, C, D, E vertices, and following adjacency lists A(B, C), B(D), D(E). What will be the result of BFS algorithm on this graph, if the starting node is A

- a. A, E, B, C, D
- b. B, A, C, D, E
- c. A, B, C, D, E
- d. A, C, B, D, E
- e. A, B, D, E, C

Question **23**

Complete

Mark 1.00 out of 1.00

An adjacency matrix representation of a graph cannot contain information of

- a. Nodes
- b. Edges
- c. Direction of edges
- d. Parallel edges

Question **24**

Complete

Mark 1.00 out of 1.00

A graph is a collection of

- a. Keys and values
- b. There is no correct answer
- c. Nodes and edges
- d. Parent and children nodes

Question **25**

Complete

Mark 1.00 out of 1.00

The memory complexity of DFS (Depth-first search) is better than the complexity of BFS (Breadth-first search)?

- a. Disagree
- b. Agree

Question **26**

Complete

Mark 1.00 out of 1.00

If G is an directed graph with 20 vertices, how many boolean values will be needed to represent G using an adjacency matrix?

- a. 400
- b. 200
- c. 40
- d. 20