



DATA Structures Midterm EXAM

Data Structures and Algorithms (AMA Computer University)



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Time taken 7 mins 47 secs

Marks 39.00/40.00

Grade 97.50 out of 100.00

Question **1**

Correct

Mark 1.00 out of 1.00

It returns a position for the tree's root.

- ☐ a. root
- ☐ b. none of the above
- ☐ c. p.root()
- ☒ d. root() ✓

Your answer is correct.

Question **2**

Incorrect

Mark 0.00 out of 1.00

It allows you to store elements so they can be located quickly using keys.

- ☐ a. storage
- ☒ b. hash map ✗
- ☐ c. hash table
- ☐ d. map

Your answer is incorrect.

Question **3**

Correct

Mark 1.00 out of 1.00

It sorts the list by moving each element to its proper place.

- ☐ a. mergesort
- ☐ b. quick sort
- ☐ c. selection sort
- ☒ d. insertion sort ✓

Your answer is correct.

Question **4**

Correct

Mark 1.00 out of 1.00

It return true if p is the root and false otherwise.

- ☐ a. isRoot()
- ☒ b. p.isRoot() ✓
- ☐ c. none of the above
- ☐ d. Root()

Your answer is correct.

Question **5**

Correct

Mark 1.00 out of 1.00

It is a node where it stores an element.

- ☐ a. right subtree
- ☐ b. left subtree
- ☒ c. root ✓
- ☐ d. tree

Your answer is correct.

Question **6**

Correct

Mark 1.00 out of 1.00

It is an ordered tree in which every node has at most two children.

- ☐ a. binary search tree
- ☒ b. binary tree ✓
- ☐ c. tree
- ☐ d. none of the above

Your answer is correct.

Question **7**

Correct

Mark 1.00 out of 1.00

It returns true if map is empty and false otherwise.

- ☐ a. isEmpty()
- ☐ b. Empty()
- ☒ c. empty() ✓
- ☐ d. empty

Your answer is correct.

Question **8**

Correct

Mark 1.00 out of 1.00

It stores elements at the nodes of the tree.

- ☒ a. tree ✓
- ☐ b. root
- ☐ c. binary search tree
- ☐ d. binary tree

Your answer is correct.

Question **9**

Correct

Mark 1.00 out of 1.00

It returns a position list containing the children of node p.

- ☒ a. p.children() ✓
- ☐ b. children()
- ☐ c. none of the above
- ☐ d. children

Your answer is correct.

Question **10**

Correct

Mark 1.00 out of 1.00

In a directed graph, edges are drawn using lines.

- ☒ a. false ✓
- ☐ b. true

Your answer is correct.

Question **11**

Correct

Mark 1.00 out of 1.00

This graph operation stores the graph in computer memory.

- ☒ a. create the graph ✓
- ☐ b. none of the above
- ☐ c. draw graph
- ☐ d. graph

Your answer is correct.

Question **12**

Correct

Mark 1.00 out of 1.00

It is a pair of nodes.

- ☒ a. edge of tree ✓
- ☐ b. nodes
- ☐ c. path
- ☐ d. edge

Your answer is correct.

Question **13**

Correct

Mark 1.00 out of 1.00

This graph operation makes the graph empty.

- ☐ a. Empty
- ☐ b. Clear
- ☒ c. Clear the graph ✓
- ☐ d. Empty graph

Your answer is correct.

Question **14**

Correct

Mark 1.00 out of 1.00

It returns the number of entries in map.

- ☒ a. size() ✓
- ☐ b. number()
- ☐ c. None of the above
- ☐ d. entries()

Your answer is correct.

Question **15**

Correct

Mark 1.00 out of 1.00

It uses divide-and-conquer technique to sort a list by partitioning the list into two sublists.

- ☐ a. quick sort
- ☐ b. insertion sort
- ☒ c. merge sort ✓
- ☐ d. selection sort

Your answer is correct.

Question **16**

Correct

Mark 1.00 out of 1.00

It is an array of size N where each cell of A is thought of as a bucket

- ☐ a. None of the above
- ☐ b. array
- ☒ c. bucket array ✓
- ☐ d. bucket

Your answer is correct.

Question **17**

Correct

Mark 1.00 out of 1.00

It return an iterator to the first entry of M.

- ☐ a. begin
- ☐ b. start()
- ☐ c. start
- ☒ d. begin() ✓

Your answer is correct.

Question **18**

Correct

Mark 1.00 out of 1.00

A linear ordering of a tree.

- ☐ a. Children node
- ☐ b. linear order
- ☒ c. Ordered trees ✓
- ☐ d. None of the above

Your answer is correct.

Question **19**

Correct

Mark 1.00 out of 1.00

Returns the parent of p.

- ☐ a. parent()
- ☐ b. root()
- ☒ c. p.parent() ✓
- ☐ d. p.root

Your answer is correct.

Question **20**

Correct

Mark 1.00 out of 1.00

It returns true if the tree is empty and false otherwise.

- ☒ a. empty() ✓
- ☐ b. empty tree
- ☐ c. isEmpty()
- ☐ d. empty

Your answer is correct.

Question **21**

Correct

Mark 1.00 out of 1.00

It is an abstract data type that stores elements hierarchically.

- ☐ a. tree structure
- ☐ b. Binary search tree
- ☐ c. Binary tree
- ☒ d. tree ✓

Your answer is correct.

Question **22**

Correct

Mark 1.00 out of 1.00

It is similar to preorder traversal of a binary tree.

- ☒ a. depth-first traversal ✓
- ☐ b. breadth-first traversal
- ☐ c. none of the above
- ☐ d. preorder traversal

Your answer is correct.

Question **23**

Correct

Mark 1.00 out of 1.00

These are used to model electrical circuits, chemical compounds and highway maps.

- ☒ a. graphs ✓
- ☐ b. directed graph
- ☐ c. map
- ☐ d. None of the above

Your answer is correct.

Question **24**

Correct

Mark 1.00 out of 1.00

A list is sorted by selecting elements in the list, one at a time, and moving them to their proper positions.

- ☐ a. Quick sort
- ☒ b. Selection sort ✓
- ☐ c. Insertion sort
- ☐ d. Mergesort

Your answer is correct.

Question **25**

Correct

Mark 1.00 out of 1.00

Returns the left child of the p.

- ☐ a. p.left
- ☐ b. left()
- ☒ c. p.left() ✓
- ☐ d. p.right()

Your answer is correct.

Question **26**

Correct

Mark 1.00 out of 1.00

It returns the parent of the tree.

- ☐ a. root()
- ☐ b. parent
- ☒ c. p.parent() ✓
- ☐ d. parent()

Your answer is correct.

Question **27**

Correct

Mark 1.00 out of 1.00

The graphs must be stored in computer memory.

- ☒ a. true ✓
- ☐ b. false

Your answer is correct.

Question **28**

Correct

Mark 1.00 out of 1.00

It is a binary tree that stores a collection of elements with their associated keys at its nodes.

- ☐ a. None of the above
- ☐ b. heap sort
- ☒ c. heap ✓
- ☐ d. heap binary tree

Your answer is correct.

Question **29**

Correct

Mark 1.00 out of 1.00

It provides a natural organization for data.

- ☒ a. Trees ✓
- ☐ b. Binary search tree
- ☐ c. None of the above
- ☐ d. Binary tree

Your answer is correct.

Question **30**

Correct

Mark 1.00 out of 1.00

It consists of two major components: bucket array and a hash function.

- ☒ a. hash table ✓
- ☐ b. None of the above
- ☐ c. array
- ☐ d. hash

Your answer is correct.

Question **31**

Correct

Mark 1.00 out of 1.00

In a tree structure, has a parent element and zero or more children elements.

- ☒ a. true ✓
- ☐ b. false

Your answer is correct.

Question **32**

Correct

Mark 1.00 out of 1.00

This graph traversal that traverse a binary tree level-by level.

- ☐ a. none of the above
- ☐ b. depth-first traversal
- ☒ c. breadth-first traversal ✓
- ☐ d. post order traversal

Your answer is correct.

Question **33**

Correct

Mark 1.00 out of 1.00

Merge sort combines the two sorted sublists into one sorted list.

- ☒ a. true ✓
- ☐ b. false

Your answer is correct.

Question **34**

Correct

Mark 1.00 out of 1.00

What is the first sublist of the following sets of number

10 18 17 15 21 34 36 32 33 37

[1]

Answer: 10 18 17 15 21



Question **35**

Correct

Mark 1.00 out of 1.00

It is a pair sets of vertices that connects through edges.

- ☐ a. graphs
- ☐ b. none of the above
- ☐ c. directed graph
- ☒ d. graph ✓

Your answer is correct.

Question **36**

Correct

Mark 1.00 out of 1.00

A tree is either empty or consist of nodes.

- ☒ a. TRUE ✓
- ☐ b. FALSE

Your answer is correct.

Question **37**

Correct

Mark 1.00 out of 1.00

It removes from the map the entry.

- ☐ a. remove()
- ☐ b. erase()
- ☐ c. erase
- ☒ d. erase(k) ✓

Your answer is correct.

Question **38**

Correct

Mark 1.00 out of 1.00

The list is partitioned and combining the sorted lowerSublist and upperSublist is trivial.

- ☒ a. quicksort ✓
- ☐ b. none of the above
- ☐ c. mergesort
- ☐ d. divide-and-conquer

Your answer is correct.

Question **39**

Correct

Mark 1.00 out of 1.00

In an undirected graph, edges are drawn using lines.

- ☒ a. false ✓
- ☐ b. true

Your answer is correct.

Question **40**

Correct

Mark 1.00 out of 1.00

A binary tree function that removes the last node of the tree and return its element

- ☐ a. delete()
- ☒ b. remove() ✓
- ☐ c. delete(e)
- ☐ d. remove(e)

Your answer is correct.

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