Started on	Saturday, 24 February 2024, 2:20 PM
State	Finished
Completed on	Saturday, 24 February 2024, 2:38 PM
Time taken	18 mins 31 secs
Marks	8.00/8.00
Grade	**10.00** out of 10.00 (**100**%)

Question 1

Correct

Mark 1.00 out of 1.00

Which one of the following is not a property of an ADT

a. Implementation independent
b. Has set of operations
c. Has a data specification
d. Implementation dependent ✔

The correct answer is: Implementation dependent

Question 2

Correct

Mark 1.00 out of 1.00

Consider a doubly linked list. A B C D are some arbitrary nodes in this linked list. Below are 3 true statements about them.

- A.next.next.next is B
- C.prev is D
- A.next.next is C

According to the above statements, what is equivalent to **D.next.next.prev** ?

Select one:

a. B.prev ✔
b. B
c. C.prev
d. A.next

Your answer is correct.

Explanation: According to the given statements, nodes are in A→D→C→B order.

The correct answer is:
B.prev

Question 3

Correct

Mark 1.00 out of 1.00

What is the output of the following code segment on python dictionary:

a = {(1,2):1,(2,3):2}

Print(a[1,2])

Answer: 1 ✔

The correct answer is: 1

Question 4

Correct

Mark 1.00 out of 1.00

In linked list implementation of queue, if only front pointer is maintained, which of the following operation take worst case linear time?

- a. To empty a queue
- b. Insertion
- c. Both Insertion and To empty a queue ✔ Since front pointer is used for deletion, so worst time for the other two cases.
- d. Deletion

The correct answer is: Both Insertion and To empty a queue

Question 5

Correct

Mark 1.00 out of 1.00

Which of the following statements are correct regarding arrays and list

- a. Arrays are continuous in memory, which makes it hard (in a performance sense) to insert elements in the middle of the array. ✔
- b. Insertion is easier in the array compared to list.
- c. In a List, elements are spread about in memory, but linked together. ✔
- d. One advantage of the array compared to list is the ability to perform random access without additional data structures. ✔

The correct answers are: Arrays are continuous in memory, which makes it hard (in a performance sense) to insert elements in the middle of the array., One advantage of the array compared to list is the ability to perform random access without additional data structures., In a List, elements are spread about in memory, but linked together.

Question 6

Correct

Mark 1.00 out of 1.00

Choose the correct statement about an array

- a. Number of elements in an array can be increased ✔
- b. Arrays cannot grow dynamically
- c. You need to always declare the number of elements in an array
- d. Array is not a data structure

The correct answer is: Number of elements in an array can be increased

Question 7

Correct

Mark 1.00 out of 1.00

What does 'stack overflow' mean by :

- a. Inserting new items to a full stack ✔
- b. Accessing an undefined item from stack
- c. Deleting an item from an empty stack
- d. Inserting a large amount of data that is larger than the available memory

The correct answer is: Inserting new items to a full stack

Question 8

Correct

Mark 1.00 out of 1.00

Which of the following statements are correct regarding implementing data structures

- a. A stack can be implemented using a singly linked list with the operations PUSH and POP still taking O(1) time ✔
- b. A queue can be implemented using a singly linked list with the operations ENQUEUE and DEQUEUE still taking O(1) time ✔
- c. A stack can be implemented using two queues. ✔
- d. A queue can be implemented using two stacks. ✔

The correct answers are: A stack can be implemented using a singly linked list with the operations PUSH and POP still taking O(1) time, A queue can be implemented using a singly linked list with the operations ENQUEUE and DEQUEUE still taking O(1) time, A queue can be implemented using two stacks., A stack can be implemented using two queues.