Started on	Sunday, 2 April 2023, 10:21 PM
State	Finished
Completed on	Sunday, 2 April 2023, 10:29 PM
Time taken	7 mins 51 secs
Marks	6.17/8.00
Grade	**7.71** out of 10.00 (**77.08**%)

Question 1

Partially correct

Mark 0.67 out of 1.00

Which of the following statements are correct regarding arrays and list

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

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 2

Correct

Mark 1.00 out of 1.00

Consider the following operation performed on a stack of size 5.

Push(1);
Pop();
Push(2);
Push(3);
Pop();
Push(4);
Pop();
Pop();
Push(5);

After the completion of all operation, the number of elements present in stack are

a. 1 ✔ Number of elements present in stack is equal to the difference between number of push operations and number of pop operations. Number of elements is 5-4=1.

b. 3

c. 2

d. 4

The correct answer is: 1

Question 3

Correct

Mark 1.00 out of 1.00

Choose a statement about stacks that is not correct?

a. Stack is a FIFO data structure ✔

b. Linked list are used for implementing stacks

c. Top of the stack always contains the latest item

d. Pop and push are the primary operations used in stacks

The correct answer is: Stack is a FIFO data structure

Question 4

Correct

Mark 1.00 out of 1.00

Which of the following operations is performed more efficiently by doubly linked list than by singly linked list?

- a. Deleting a node whose location in given ✔
- b. Inverting a node after the node with given location
- c. Traversing a list to process each node
- d. Searching of an unsorted list for a given item

The correct answer is: Deleting a node whose location in given

Question 5

Correct

Mark 1.00 out of 1.00

Which of the following is not a data structure

- a. Variable ✔
- b. Record
- c. Array
- d. Dictionary

The correct answer is: Variable

Question 6

Incorrect

Mark 0.00 out of 1.00

Choose the correct statement about an array

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

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

Question 7

Partially correct

Mark 0.50 out of 1.00

Which of the following statements are correct regarding implementing data structures

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

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.

Question 8

Correct

Mark 1.00 out of 1.00

Which of the following statement(s) is/are correct regarding dictionary data structure.

- [x] a. Dictionaries are often implemented as hash tables. ✔
- [x] b. Dictionaries typically support operations such as testing for existence of a key, inserting elements and deleting elements. ✔
- [x] c. A dictionary has a set of *keys* and each key has a single associated *value and* when presented with a key, the dictionary will return the associated value. ✔
- [ ] d. In a dictionary, if the value of a key is null, then search operation on that dictionary will return that key as non-existent.

The correct answers are: A dictionary has a set of *keys* and each key has a single associated *value and* when presented with a key, the dictionary will return the associated value., Dictionaries are often implemented as hash tables., Dictionaries typically support operations such as testing for existence of a key, inserting elements and deleting elements.