ADS CCEE Practice Quiz 1

Total points 34/40

The respondent's email (**harshal.tarmale.cmaug25@gmail.com**) was recorded on submission of this form.

0 of 0 points

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MCQ 34 of 40 points

✓ Which of these data types is used by operating system to manage the Recursion in Java? *1/1

○ Array

○ LinkedList

● Stack ✓

○ Queue

✗ Which of the following operations is **not efficient in an ArrayList** compared to a LinkedList? *0/1

○ A) Random access by index

● B) Iterating through elements ✗

○ C) Inserting/removing in the middle

○ D) Accessing the first element

Correct answer

● C) Inserting/removing in the middle

✓ * 1/1

```
import java.util.*;
public class Test {
    public static void main(String[] args) {
        HashMap<Integer, String> map = new HashMap<>();
        map.put(1, "A");
        map.put(2, "B");
        map.put(1, "C");
        System.out.println(map.get(1));
    }
}
```

○ A

● C ✓

○ Error

○ Null

✓ Which of the following is **NOT true** about recursion in Java? * 1/1

○ A) Every recursive function must have a base case.

○ B) Recursion can lead to StackOverflowError if base case is missing.

● C) Recursion always executes faster than iteration. ✓

○ D) Recursion can call itself with smaller sub-problems.

✓ What is the **load factor** of a HashMap by default? * 1/1

○ A) 0.5

○ B) 0.65

● C) 0.75 ✓

○ D) 1.0

✓ What is the **default initial capacity** of a HashMap? * 1/1

○ A) 8

○ B) 10

● C) 16 ✓

○ D) 32

✓ What is the output of the following code? * 1/1

```
int[] arr = {11, 22, 33, 44, 55};
int key = 100;
int index = -1;

for (int i = 0; i < arr.length; i++) {
    if (arr[i] == key) {
        index = i;
    }
}
System.out.println(index);
```

○ 100

○ 4

● -1 ✓

○ Key Not Found

✓ What will be the output of the following code? * 1/1

```
public class Test {
    public static void main(String[] args) {
        int[] arr = new int[5];
        System.out.println(arr[2]);
    }
}
```

● A) 0 ✓

○ B) Garbage value

○ C) Compilation error

○ D) ArrayIndexOutOfBoundsException

✓ Binary Search can be categorized into which of the following? * 1/1

○ Greedy algorithm

○ Dynamic programming

○ Brute Force technique

● Divide and conquer ✓

✓ Which keyword is used to **explicitly throw an exception**? * 1/1

○ A) try

○ B) catch

● C) throw ✓

○ D) throws

✗

```
import java.util.*;
public class Test {
    public static void main(String[] args) {
        ArrayList list = new ArrayList();
        list.add("Java");
        list.add(100);
        System.out.println(list.get(1));
    }
}
```

* 0/1

○ A) Java

○ B) 100

● C) Compilation error ✗

○ D) ClassCastException

Correct answer

● B) 100

✓ Which of the following is **true**? * 1/1

○ OptionA) Linear search is faster for small datasets.

○ B) Binary search is better for large, sorted datasets.

○ C) Binary search requires random access.

● D) All of the above. 1 ✓

✓

```
import java.util.*;
public class Test {
    public static void main(String[] args) {
        int[] arr = {1, 2, 3, 4};
        int[] arr2 = arr;
        arr2[1] = 99;
        System.out.println(arr[1]);
    }
}
```

* 1/1

○ 1

○ 2

● 99 ✓

○ Complietime Error

✗

```
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int[] arr = {5, 1, 3, 2, 4};
        Arrays.sort(arr);
        System.out.println(Arrays.binarySearch(arr, 3));
    }
}
```

* 0/1

● 4 ✗

○ 2

○ 3

○ Undefined

Correct answer

● 2

✓ Which of the following is the correct way to declare a multidimensional array in Java? * 1/1

○ int[ ] arr;

○ int arr[[ ]];

● int[ ][ ] arr; ✓

○ int[[ ]] arr;

✓ A linear collection of data elements where the linear node is given by means of pointer is called? * 1/1

○ Queue

○ Stack

● LinkedList ✓

○ Array

✗ Which of the following statements about singly linked list is **false**? * 0/1

○ A) Traversal is possible only in one direction.

○ B) Random access by index is O(1).

○ C) Insertion at head is O(1).

● D) Deletion at a given key may require traversal. ✗

Correct answer

● B) Random access by index is O(1).

✓ Which of the following conditions must be true for **Binary Search** to work correctly? *1/1

● A) Array must be sorted ✓

○ B) Array must contain only integers

○ C) Array size must be a power of 2

○ D) Array must not contain duplicates

✓ What is output of the following code? * 1/1

```
public class Demo1 {
   static int sumDown(int n) {
      if (n == 0) return 0;
      return n + sumDown(n);
   }
   public static void main(String[] args) {
      System.out.println(sumDown(5));
   }
}
```

○ 25

○ 20

○ 5

● StackOverflowError ✓

✓ Which of the following methods actually exists in ArrayList to check if an element is present? * 1/1

○ A) has()

● B) contains() ✓

○ C) exists()

○ D) search()

✓ Elements in an array are accessed _____________ * 1/1

● Randomly ✓

○ Sequentially

○ exponentially

○ logarithmically

✗

```
import java.util.*;
public class Test {
    public static void main(String[] args) {
        ArrayList<Integer> list = new ArrayList<>();
        list.add(1);
        list.add(2);
        list.add(3);
        list.remove(1);
        System.out.println(list);
    }
}
```

* 0/1

○ A) [1, 2, 3]

○ B) [1, 3]

● C) [2, 3] ✗

○ D) Compilation error

Correct answer

● B) [1, 3]

✓ What is the **time complexity** of inserting a node at the **beginning** of a singly linked list? *1/1

● A) O(1) ✓

○ B) O(n)

○ C) O(log n)

○ D) O(n log n)

✓ What is the output of the following code? * 1/1

```
public class Test {
    public static void main(String[] args) {
        int[] arr = {10, 20, 30, 40};
        for (int i = 0; i < arr.length; i++) {
            arr[i] = arr[i] + i;
        }
        System.out.println(arr[2]);
    }
}
```

○ 30

○ 21

○ 31

● 32 ✓

✓ What is the **default initial capacity** of an ArrayList in Java? * 1/1

○ 0

○ 16

● 10 ✓

○ 5

✓ Which statement about ArrayList resizing is correct? * 1/1

● A) It doubles its capacity every time it runs out of space. ✓

○ B) It increases by 1 element each time.

○ C) It triples its capacity.

○ D) It stays fixed.

✓ What is the output of the following code snippet? * 1/1

```
public class Test {
   static int fun(int n) {
      if (n == 0) return 0;
      return n + fun(n - 1);
   }

   public static void main(String[] args) {
      System.out.println(fun(4));
   }
}
```

○ 4

○ 0

● 10 ✓

○ Comliation error

✓ What is the output of following code * 1/1

```
class Fun1
{
public static void main(String abc[])
{
  int arr[] ={10,20,30,40,50};
  System.out.println(arr[5]);
}
}
```

○ 50

○ Compile time error

● ArrayIndexOutofBound Exception ✓

○ Stack overflow

✓ What will the following code do? * 1/1

```
Node head = new Node(10);
 head.next = new Node(20);
head.next.next = new Node(30);
 head = head.next;
System.out.println(head.data);
```

○ A) 10

● B) 20 ✓

○ C) 30

○ D) NullPointerException

✓ Which of the following statements about arrays in Java is **false**? * 1/1

○ A) Arrays are objects.

● B) Array size can be changed after creation. ✓

○ C) An array can store primitive or objects.

○ D) Arrays have a length property.

✓ The array is as follows: 1,2,3,6,8,10. Given that the number 17 is to be searched. At which call it tells that there is no such element ?(By using linear search(recursive) algorithm) *1/1

○ 5th Call

○ 17th Call

● 7th Call ✓

○ The function call itself infinite time

✓ What will this code print? * 1/1

```
int[] arr = {2, 4, 6, 8, 10};
int key = 8;
int index = -1;

for (int i = 0; i < arr.length; i++) {
    if (arr[i] == key) {
        index = i;
        break;
    }
}
System.out.println(index);
```

○ A) 2

● B) 3 ✓

○ C) 4

○ D) -1

✓

```
class Node {
    int data;
    Node next;
    Node(int d) { data = d; }
}
public class Test {
    public static void main(String[] args) {
        Node head = new Node(10);
        head.next = new Node(20);
        Node newHead = new Node(5);
        newHead.next = head;
        head = newHead;
        System.out.println(head.data);
    }
}
```

* 1/1

○ A) 10

● B) 5 ✓

○ C) 20

○ D) NullPointerException

✓
```
public class Main{
    public static void main(String[] args) {
        int[][] arr = new int[2][];
        arr[0] = new int[]{1,2,3};
        arr[1] = new int[]{4,5};
        System.out.println(arr[1][2]);
    }
}
```
* 1/1

○ A) 0

○ B) 5

● C) ArrayIndexOutOfBoundsException ✓

○ D) Compilation error

✓ Which of the following is **true about HashMap in Java**? * 1/1

○ A) It allows one null key and multiple null values.

○ B) It doesn’t maintain any order of keys.

○ C) Key lookups are average O(1).

● D) All of the above ✓

✓ Which Java interface provides the root of the **collection hierarchy**? * 1/1

● A) Iterable ✓

○ B) Collection

○ C) List

○ D) Map

✓ Which collection guarantees that elements are **sorted in natural order**? * 1/1

○ A) HashSet

○ B) LinkedHashSet

● C) TreeSet ✓

○ D) PriorityQueue

✗ The optimal data structure used to solve Tower of Hanoi is _________ * 0/1

● Tree ✗

○ Heap

○ Priority queue

○ Stack

Correct answer

● Stack

✓

```
import java.util.*;
public class Test {
  public static void main(String[] args) {
    HashMap<Integer, String> map = new HashMap<>();
    map.put(null, "A");
    map.put(null, "B");
    System.out.println(map.size());
    System.out.println(map.get(null));
  }
}
```

* 1/1

○ A) 2 and A

● B) 1 and B ✓

○ C) 2 and B

○ D) Compilation error

✓ Which of the following is the **parent class of all exceptions** in Java? * 1/1

● A) Throwable ✓

○ B) Exception

○ C) RuntimeException

○ D) Error