



Question - 1

Reverse String

SCORE: 30 points

Reverse a String

Example:

input: bc

output: cb

Question - 2

SCORE: 10 points

Identify whether the following statements are True or False:

I. Comparable interface uses compare method for object comparisons.

II. Comparator interface uses compareTo method for object comparisons.

- ☐ I. True II. True
- ☒ I. False II.False
- ☐ I. True II.False
- ☐ I. False II.True

Question - 3

SCORE: 10 points

Which of the following is true about factory method?

- ☐ A factory method is a non-constructor operation that creates and returns class instances
- ☐ Factory methods are widely used in mid-level design patterns and in object-oriented programming in general
- ☐ Factory methods create new instances using constructors or cloning, so they do not rely on any special technique for class instantiation
- ☒ All of the above.

Question - 4

SCORE: 10 points

What is the output of this program?

```
import java.util.*;

public class Demo {

    public static void main(String []args) {
        ArrayList<Integer> result = new
ArrayList<>();
        int[] nums = {2, 8, 3, 6, 1, 10, 5, 7, 4,
3};
        int[] copy = nums;
        for (int i = 0; i < nums.length; i++) {
            // check if nums[i] is odd number
            if (nums[i] % 2 == 1) {
                nums[i]++;
                result.add(copy[i]);
                continue;
            }
        }
        // print every element within the
arraylist
        for (int i: result) {
            System.out.print(i + " ");
        }
    }
}
```

- ☐ 3
- ☐ 4
- ☐ 3 1 5 7 3
- ☒ 4 2 6 8 4

Question - 5

SCORE: 10 points

Say that there are three classes: *Computer*, *AppleComputer*, and *IBMComputer*. What are the likely relationships between these classes?

- ☒ Computer is the superclass, AppleComputer and IBMComputer are subclasses of Computer.
- ☐ Computer, AppleComputer and IBMComputer are sibling classes.
- ☐ IBMComputer is the superclass, AppleComputer and Computer are subclasses of IBMComputer.
- ☐ Computer is a superclass, AppleComputer is a subclasses of Computer, and IBMComputer is a subclas of AppleComputer.

Question - 6

Which of the following is incorrect?

SCORE: 10 points

Which of the following is incorrect?

X: `super` keyword and `this` keyword can not be used in a `static` method.

Y: `static` variables are shared by all objects and initialized when the `class` is first loaded.

- ☐ Only X
- ☐ Only Y
- ☒ Both are correct
- ☐ Both are incorrect

Question - 7

SCORE: 10 points

What will be the output of the following code?

```
int[] arr = new int[9];
System.out.println(arr[9]);
```

- ☐ 0
- ☐ Some junk value
- ☐ Error because array is not initialized
- ☒ Error because index is out of range

Question - 8

SCORE: 10 points

What numbers does the following code print to the console?

```
int[] nums = {1, 2, 3, 4, 5, 6, 7, 8, 9};
for (int i = 0; i < 8; i++) {
    System.out.print(nums[i]+1);
}
```

- ☐ 01234567
- ☐ 12345678
- ☒ 23456789
- ☐ 345678910