Question - 1

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 - 2

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 sublclas of AppleComputer.

Question - 3
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 - 4

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 - 5

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

Question - 6

SCORE: **30 points**

Reverse a charList

Reverse a charList

input: {'a','b','c'}
output: {'c','b','a'}

Question - 7

Choose the correct output according to following code:

static

Choose the correct output according to following code:

```java
public class Q {
        static int c = 0;
        public static void main(String[] args) {
            Q q1 = c();
            Q q2 = c(q1);
            Q q3 = c(q2);
            Q q4 = c(q3);
        }
        private Q() {
            System.out.print("c = " + c + " ");
        }
        static Q c() {
            return c++ <= 0 ? new Q() : null;
        }
        static Q c(Q w) {
            return w.c++ == 1 ? new Q() : null;
        }
}
```

- ⦿ c = 1 c = 2

- ◯ c = 1 c = 2 c = 3

- ◯ c = 1 c = 2 c = 3 c = 4

- ◯ Compilation Error

- ◯ NullPointerException

Question - 8

Which is the correct syntax to convert JPanel layout to CardLayout?

A. CardLayout layout = ((CardLayout)myPanel).getLayout();
B. CardLayout layout = (CardLayout) myPanel.getLayout();

- ◯ A

- ⦿ B

- ◯ Both A and B are correct

- ◯ Both A and B are incorrect