

1) After the following statements:

[1]

```
for (int i = 0; i < 5; i++) {  
    char c = (i <= 3) ? 'A' : 'B';  
    System.out.print(c + "-");  
}
```

What will print on the console? \_\_\_ **A-A-A-A-B** - \_\_\_

2) After the following statements:

[1]

```
boolean a = true;  
boolean b = true;  
boolean c = false;  
if (a & (b | c))  
    System.out.println("First");  
else  
    System.out.println("Second");
```

What will print on the console? \_\_\_ **Second** \_\_\_

3) In what order should the following terms appear in a Java class?

[1]

Terms: **import**, **class**, **package**,

1st: \_\_\_ **package** \_\_\_

2nd: \_\_\_ **import** \_\_\_

3rd: \_\_\_ **class** \_\_\_

4) Write the following code using the ? operator:

[1]

```
if (X < 5) Y = 10;  
else Y = 20;
```

\_\_\_ **X = (Y < 5) ? 10 : 20** \_\_\_

5) Complete the following sentences. [2]

The \_\_\_ **extends** \_\_\_ keyword is used when inheriting from a regular class.

The \_\_\_ **private** \_\_\_ keyword is used to define a variable that is only visible within the class.

6) When the contents of a String are described as being **immutable**, this means: [1]

- a) The characters of a String cannot be accessed.
- b) The characters of String cannot be altered.
- c) The String contents cannot be shared with other String instances.

Answer: \_\_\_ **b** \_\_\_

7) Given the following code snippet: [1]

```
class Alpha {  
    public Alpha() { ... }  
}  
class Bravo extends Alpha {  
    public Bravo(int a) { ... }  
}  
class Charlie extends Bravo {  
    public Charlie(int a) {  
        super(a);  
        ... }  
}
```

In what order do the constructors for these classes complete their execution when a **Charlie** object is instantiated?

Answer: \_\_\_\_\_ **Alpha->Bravo->Charlie** \_\_\_\_\_

Use the code example shown to answer the following questions:

```
public class A (  
    private int i, j;  
    protected int area;  
  
    private ArrayList<Vehicle> list = new ArrayList<Vehicle>();  
  
    public A(int a, int b) {  
        i = a;  
        j = b;  
        area = calcArea();  
    }  
  
    private int calcArea() { return i * j; }  
  
    public void add(Vehicle vehicle) {  
        list.add(vehicle);  
    }  
  
    public void show() {  
        area = calcArea();  
        System.out.println("Garage: " + garage);  
        System.out.println("i and j: " + i + ", " + j);  
    }  
  
    public static int area(int x, int y) {  
        x -= 1;  
        y += 1;  
        return (x * y);  
    }  
}  
  
public class B extends A {  
    private Garage garage = new Garage();  
    public B(int a, int b) {  
        super(a,b);  
    }  
  
    public void show() {  
  
        __ super.show(); __ // ← Write question 8 answer here  
  
        System.out.println("area: " + area);  
    }  
}
```

8) In the Class B show() method, if you wished to call the version of show() defined by superclass A, what code would you need to add? [2]  
(Write your answer above in the space shown above, within class B)

9) What is the returned result from a call to A.area(3,6)?

[1]

Answer: **14**

10) Packages are stored in (i.e. mirrored in) \_\_ **"the filesystem" or "archive"** \_\_. [2]

11) Draw the UML Association diagram. [5]

*(Note: interior class details may be omitted. Only draw associations between classes).*

+2 Show class "A" and class "B"

+1 Show association from **"B"** to class "Garage"

+1 Show collection of Vehicles in class "A"

+1 Show class "B" inheriting (extending) from class "A"

12) Complete the following sentence: [1]

If you need to pass a primitive value as a reference, you can use

a **wrapper** class.

13) If all objects of a class need to share the same variable, how must you declare that variable? [1]

Answer: **static**