

CS2401 – QUIZ 5

February 26, 2014 – 18 questions / 20 points / 20 minutes

NAME:

Questions on Objects and Classes

1 An object is an instance of a _____.

- A. program
- B. class
- C. method
- D. data

2 _____ is invoked to create an object.

- A. A constructor
- B. The main method
- C. A method with a return type
- D. A method with the void return type

3 What is wrong in the following code?

```
class TempClass {  
    int i;  
    public void TempClass(int j) {  
        int i = j;  
    }  
}  
  
public class C {  
    public static void main(String[] args) {  
        TempClass temp = new TempClass(2);  
    }  
}
```

- A. The program has a compilation error because TempClass does not have a default constructor.
- B. The program has a compilation error because TempClass does not have a constructor with an int argument.
- C. The program compiles fine, but it does not run because class C is not public.
- D. The program compiles and runs fine.

3a If anything was wrong with the code of Question 3, show how to fix it:

4 Given the declaration `Circle x = new Circle()`, which of the following statement is most accurate.

- A. x contains an int value.
- B. x contains an object of the Circle type.
- C. x contains a reference to a Circle object.
- D. You can assign an int value to x.

5 Analyze the following code.

```
public class Test {  
    int x;  
  
    public Test(String t) {  
        System.out.println("Test");  
    }  
  
    public static void main(String[] args) {  
        Test test = null;  
        System.out.println(test.x);  
    }  
}
```

- A. The program has a compile error because test is not initialized.
- B. The program has a compile error because x has not been initialized.
- C. The program has a compile error because you cannot create an object from the class that defines the object.
- D. The program has a compile error because Test does not have a default constructor.
- E. The program has a runtime NullPointerException because test is null while executing test.x.

6 The default value for data field of a boolean type, numeric type, object type is _____, respectively.

- A. true, 1, Null
- B. false, 0, null
- C. true, 0, null
- D. true, 1, null
- E. false, 1, null

7 Analyze the following code:

```
public class Test {  
    public static void main(String[] args) {  
        double radius;  
        final double PI= 3.15169;  
        double area = radius * radius * PI;  
        System.out.println("Area is " + area);  
    }  
}
```

- A. The program has compile errors because the variable radius is not initialized.
- B. The program has a compile error because a constant PI is defined

inside a method.

C. The program has no compile errors but will get a runtime error because radius is not initialized.

D. The program compiles and runs fine.

Questions on Arrays

8 What is the output of the following code?

```
double[] myList = {1, 5, 5, 5, 5, 1};
double max = myList[0];
int indexOfMax = 0;
for (int i = 1; i < myList.length; i++) {
    if (myList[i] > max) {
        max = myList[i];
        indexOfMax = i;
    }
}
System.out.println(indexOfMax);
```

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

9 Analyze the following code:

```
public class Test {
    public static void main(String[] args) {
        int[] x = new int[5];
        int i;
        for (i = 0; i < x.length; i++)
            x[i] = i;
        System.out.println(x[i]);
    }
}
```

- A. The program displays 0 1 2 3 4.
- B. The program displays 4.
- C. The program has a runtime error because the last statement in the main method causes `ArrayIndexOutOfBoundsException`.
- D. The program has a compile error because `i` is not defined in the last statement in the main method.

10 (for-each loop) Analyze the following code:

```
public class Test {
    public static void main(String[] args) {
        double[] x = {2.5, 3, 4};
        for (double value: x)
            System.out.print(value + " ");
    }
}
```

- A. The program displays 2.5, 3, 4
- B. The program displays 2.5 3 4
- C. The program displays 2.5 3.0 4.0
- D. The program displays 2.5, 3.0 4.0
- E. The program has a syntax error because value is undefined.

11 What is output of the following code:

```
public class Test {  
    public static void main(String[] args) {  
        int[] x = {120, 200, 016};  
        for (int i = 0; i < x.length; i++)  
            System.out.print(x[i] + " ");  
    }  
}
```

- A. 120 200 16
- B. 120 200 14
- C. 120 200 20
- D. 016 is a compile error. It should be written as 16.

12 What will be displayed by the following code?

```
class Test {  
    public static void main(String[] args) {  
        int[] list1 = {1, 2, 3};  
        int[] list2 = {1, 2, 3};  
        list2 = list1;  
        list1[0] = 0; list1[1] = 1; list2[2] = 2;  
  
        for (int i = 0; i < list1.length; i++)  
            System.out.print(list1[i] + " ");  
    }  
}
```

- A. 1 2 3
- B. 1 1 1
- C. 0 1 2
- D. 0 1 3

13 Analyze the following code:

```
public class Test1 {  
    public static void main(String[] args) {  
        xMethod(new double[] {3, 3});  
        xMethod(new double[5]);  
        xMethod(new double[3] {1, 2, 3});  
    }  
  
    public static void xMethod(double[] a) {  
        System.out.println(a.length);  
    }  
}
```

- A. The program has a compile error because xMethod(new double[] {3, 3})

is incorrect.

- B. The program has a compile error because `xMethod(new double[5])` is incorrect.
- C. The program has a compile error because `xMethod(new double[3]{1, 2, 3})` is incorrect.
- D. The program has a runtime error because `a` is `null`.

14 Suppose a method `p` has the following heading:

```
public static int[] p()
```

What return statement may be used in `p()`?

- A. `return 1;`
- B. `return {1, 2, 3};`
- C. `return int[]{1, 2, 3};`
- D. `return new int[]{1, 2, 3};`

Questions on Linked Lists

15 What is/are the main advantage(s) of using linked lists as opposed to arrays?

- A. easy to access
- B. flexible
- C. their elements do not all have to be of the same type
- D. both

16 What do simple linked-list nodes consist of?

- A. specific content
- B. address
- C. a Boolean value that indicates when the current node is the last one

17 In a linked list, elements can be added:

- A. at the start of the list
- B. at the end of the list
- C. anywhere

18 Assuming that `head` is the first node of a linked list `L`, traversing `L` is as simple as repeatedly executing: `first = first.link`.

- A. Yes
- B. No

Justify your answer: