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جامعة بيرزيت

BIRZEIT UNIVERSITY
COMP231 (Fall 2014/2015)

Time: 75 minutes

Midterm Exam (November 16th 2014)

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Section #: (-1 mark for wrong section #)

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- ○ Sec 5 Dr. Mamoun Nawahdah
- ○ Sec 6 Dr. Yousef Hassouneh

[Q1 30%] Multiple choices:

1)	Analyze the following code:
	`class Circle {`
	`  private double radius;`
	`  public Circle(double radius) {`
	`  radius = radius;`
	`  }`
	`}`

○ A)	The program has a compilation error because you cannot assign **radius** to **radius**.
○ B)	The program does not compile because **Circle** does not have a default constructor.
○ C)	The program will compile, but you cannot create an object of **Circle** with a new specified **radius**.
○ D)	The program has a compilation error because it does not have a **main** method.

2)	Analyze the following code:
	`public class Test {`
	`  private int t;`
	`  public static void main(String[] args) {`
	`  int x;`
	`  System.out.println(t);`
	`  }`
	`}`

○ A)	**t** is non-static and it cannot be referenced in a static context in the **main** method.
○ B)	The variable **x** is not initialized and therefore causes errors.
○ C)	The variable **t** is private and therefore cannot be accessed in the **main** method.
○ D)	The variable **t** is not initialized and therefore causes errors.

3)	Given the declaration **Circle x = new Circle()**, which of the following statement is most accurate?
○ A)	**x** contains a reference to a **Circle** object.
○ B)	You can assign an **int** value to **x**.
○ C)	**x** contains an object of the **Circle** type.
○ D)	**x** contains an **int** value.

default by implicitly لم ينشئ nondefault constructor إذا عرفنا

لا يمكن استخدامه ضمنياً ⇐ 0

4) 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;
    System.out.println(test.x);
  }
}
```

- A) The program has a compile error because **Test** does not have a default constructor.
- B) The program has a compile error because **test** is not initialized.
- C) The program has a compile error because x has not been initialized.
- D) The program has a runtime NullPointerException because **test** is **null** while executing **test.x**.

5) if a class named **Student** has a constructor **Student(String name)** defined explicitly, the following constructor is implicitly provided.

- A) public Student()
- B) private Student()
- C) protected Student()
- D) None

6) Suppose the **myMethod()** is invoked in the following constructor in a class, **myMethod()** is ______________ in the class.

```
public MyClass() {
    myMethod();
}
```

- A) a static method
- B) an instance method
- C) a static method and an instance method
- D) a static method or an instance method

7) When you implement a method that is defined in a superclass, you __________ the original method.

- A) override
- B) overload
- C) overShatara
- D) call

8) Which of these keywords can be used to prevent method overriding?

- A) final
- B) constant
- C) protected
- D) static

9) What is the output of running class C?

```
class A {
 public A() {
   System.out.println(" AAA ");
 }
}

class B extends A {
 public B(String s) {
   System.out.println(s);
 }
}

public class C {
 public static void main(String[] args) {
   B b = new B(" BBB ");
 }
}
```

AAA
BBB

- O A) " *AAA* "
- O B) " *BBB* "
- O C) " *BBB* " followed by " *AAA* "
- O D) " *AAA* " followed by " *BBB* "

10) What is the output of running the class **C**:

```
public class C {
 public static void main(String[] args) {
        Object[] o = {new A(), new B()};
        System.out.print(o[0]);
        System.out.print(o[1]);
 }
}

class A extends B {
      public String toString() {
       return "A";
 }
}

class B {
 public String toString() {
        return "B";
 }
}
```

- O A) BA
- O B) AB
- O C) AA
- O D) BB

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System (2+3) => 23

System (2+3+"a") => 5a

String

("a"+2+3) => a23

[Q2 30%]

a) Analyze the following code for errors. If there is NO error, what is the output? If there is an error, what is the error?

```
public class Test{
  String text;
  public void Test(String s) {
    this.text = s;
  }

  public static void main(String[] args) {
    Test test = new Test("ABC");
    System.out.println(test);
  }
}
```

Has error: ✓ No Yes Yes, Construction don't have return type even Void

Output / Error : ~~at the (print) statement, you can't print the reference and it will not print ABC~~ the output will be the address of Test class (it will invoke toString automaticly

b) Show the output of the following program:

```
public class Test {
    public static void main(String[] args) {
      String s = "Java";
      StringBuilder builder = new StringBuilder(s);
      change(s, builder);
      System.out.println(s);
      System.out.println(builder);
    }
    private static void change(String str, StringBuilder builder) {
      str += " & HTML";
      builder.append(" & HTML");
    }
}
```

s = "Java"

Output: Java

Java & HTML

Write a Java program that will count the number of vowel characters (a, e, i, o, and u and their uppercases) and digits (0..9) in a text file. Read the file name using JOptionPane dialog. (*hint: you may use the* **Character** *class*).

```
- import javax.swing.JOptionPane;
- import java.util.*;
- import java.io.*;
- public class Qc{
-   public static void main(String[] args) throw Exception
    {
-   String path = JOptionPane.showInputDialog(null,"Enter the path:");
-   File f1 = new File(path);
    int count=0;
-   Scanner s1 = new Scanner(f1);
-   While(s1.hasNext())
-   {String S = s1.nextLine();
-   for(int i=0;i<S.length();i++)
-   { if(Character.isLetter(S.charAt(i)){
    char[]Array={'a','A','o','O','e','E','i','I'
                 'u','U'};
    if(x== Array[i])
    count++;
```

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