PROGRAMMING IN JAVA

Assignment3

TYPE OF QUESTION: MCQ

Number of questions:10 **Total mark: 10 × 1 = 10**

QUESTION 1:

Which of following statement(s) is/are true?

a. Instance methods can access instance variables and instance methods directly.
b. Instance methods cannot access class variables and class methods directly.
c. Class methods can access class variables and class methods directly.
d. Class methods cannot access instance variables or instance methods directly—they must use an object reference.

Correct Answer: a, c, d

Detailed Solution:
Instance methods can access class variables and class methods directly.

QUESTION 2:

```
public class Question
{

    public static int x = 7;
    public static void main(String[] args) {

        Question a = new Question ();
         Question b = new Question ();
         a.x = 1;
         b.x = 2;
         System.out.println(a.x+b.x+Question.x);
    }
}
```

What is the output of the above program?

a. 6
b. 10
c. 21
d. runtime error

Correct Answer: a

Detailed Solution:

Because x is defined as a public static int in the class `Question`, every reference to x will have the value that was last assigned because x is a static variable (and therefore a class variable) shared across all instances of the class. That is, there is only one x: when the value of x changes in any instance it affects the value of x for all instances of `Question`.

QUESTION 3:

Which of the following is called when a method having the same name as that of the class is defined?

a. abstract
b. this
c. final
d. constructor

Correct Answer: d

Detailed Solution:
In a class, if more than one method having the same name but with different signature is used, then it is called a constructor.

QUESTION 4:

Hiding internal data from the outside world, and accessing it only through publicly exposed methods is known as data_____

a. Polymorphism
b. Encapsulation.
c. Inheritance.
d. Duplication.

Correct Answer: b

Detailed Solution: Hiding the internal details from the outside world is known as encapsulation.

QUESTION 5:

Consider the following piece of code in Java.

```
class B {
     protected int  method(int a, int b){
        return 0;
     }
}
```

Which of the following method(s) is/are declaration is/are **not** valid in a class that extends class B?

```
a. public int method(int a, int b) {
         return 0;
   }
b. private int method(int a, int b) {
         return 0;
   }
c. static protected int method(int a, int b) {
         return 0;
    }
d. public short method(int a, int b) {
         return 0;
    }
```

Correct Answer: b,c,d

Detailed Solution:

Option a is correct because the class that extends A is just simply overriding method. Others are not.

QUESTION 6:

Which of the following statement(s) is/are true?

a. A final method cannot be overridden in a subclass.
b. The advantage of private static methods is that they can be reused later if you need to reinitialize the class variable.
c. Class methods cannot use this keyword as there is no instance for this to refer to.
d. A final method can be overridden in a subclass.

Correct Answer: a,b,c

Detailed Solution:

A final method cannot be overridden in a subclass. Class methods cannot use this keyword as there is no instance for this to refer to. The advantage of private static methods is that they can be reused later if you need to reinitialize the class variable.

QUESTION 7:

Advantage(s) of inheritance in Java programming is/are

a. Code sharing
b. Code maintainability
c. Code reusability
d. All of the above

Correct Answer: d

Detailed Solution:
In fact, above benefits are related to each other. Frequent use of inheritance in Java language is for deriving classes from existing classes that provides reusability. In simple terms, once we have written a class then it can be extended or sub classed without changing the code of base class.

QUESTION 8:

Consider the following class definition:

```
class Student extends String {

}
```

Which of the following statement(s) is/ are TRUE?

a. Code will not compile because the body is not defined.
b. Code will not compile because the class is not declared as public.
c. Code will not compile because of the super class String.
d. Code will compile successfully.

Correct Answer: c

QUESTION 9:

```
public class Test1{
    Test1() {
      Test1 obj1 = new Test1();
}

public static void main(String []args) {
    Test1 obj = new Test1();
     System.out.println("Hello");
}
}
```

Which of the following statements is/ are true?

a. Hello
b. Program will compile successfully.
c. There will be a compile-time error.
d. The program will give a runtime error.

Correct Answer: b, d

Detailed Solution:
Constructor if you defined recursively, then it will show runtime error.

QUESTION 10:

Which of the following statement(s) is/are true?

a. Hiding internal data from the outside world, and accessing it only through publicly exposed methods is known as data **encapsulation**.
b. Common behavior can be defined in a **superclass** and inherited into a **subclass** using the **extends** keyword.
c. The term "class variable" is another name for **non-static field**.
d. A local variable stores temporary state; it is declared inside a **method**.

Correct Answer: a,b,d

Detailed Solution:
The term "class variable" is another name for **static field.**
