FULL STACK DEVELOPMENT – WORKSHEET 4

Q1.Write in brief about OOPS Concept in java with Examples. (In your own words)

Ans 1. OOPS means Object Oriented Programming system in java. In this programming is oriented on objects. Objects are like real-world entities, for example pen, pencil, car, bag, etc. This creates structure of programm and it contains both data and functions that operates on data. OOPs concept is faster and easier to execute. Classes and objects are two main aspects of oops. It also includes Inheritance, Polymorphism, Abstraction and Encapsulation.

Q2.Write simple programs(wherever applicable) for every example given in Answer 2.

Multiple Choice Questions

Q1. Which of the following is used to make an Abstract class?

A. Making at least one member function as pure virtual function
B. Making at least one member function as virtual function
C. Declaring as Abstract class using virtual keyword
D. Declaring as Abstract class using static keyword

Ans . A. Making at least one member function as pure virtual function

Q2. Which of the following is true about interfaces in java.

1) An interface can contain the following type of members.
....public, static, final fields (i.e., constants)
....default and static methods with bodies
2) An instance of the interface can be created.
3) A class can implement multiple interfaces.
4) Many classes can implement the same interface.

A. 1, 3 and 4
B. 1, 2 and 4
C. 2, 3 and 4
D. 1,2,3 and 4

Ans. A

Q3. When does method overloading is determined?

A. At run time
B. At compile time
C. At coding time
D. At execution time

Ans. B

Q4.What is the number of parameters that a default constructor requires?

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

Ans. A

Q5.To access data members of a class, which of the following is used?

A. Dot Operator
B. Arrow Operator
C. A and B both as required
D. Direct call

Ans. Dot Operator

Q6.Objects are the variables of the type_____?

A. String
B. Boolean
C. Class
D. All data types can be included

Ans. Class

Q7.A non-member function cannot access which data of the class?

A. Private data
B. Public data
C. Protected data
D. All of the above
Ans. A Private Data

Q8. Predict the output of following Java program

```
class Test {
  int i;
}
class Main {
  public static void main(String args[]) {
     Test t = new Test();
     System.out.println(t.i);
         }
        }
```

A. garbage value
B. 0
C. compiler error
D. runtime Error

Q9.Which of the following is/are true about packages in Java?

1) Every class is part of some package.

2) All classes in a file are part of the same package.

3) If no package is specified, the classes in the file go into a special unnamed package

4) If no package is specified, a new package is created with folder name of class and the class is put in this package.

A. Only 1, 2 and 3
B. Only 1, 2 and 4
C. Only 4
D. Only 1, 3 and 4

For Q10 to Q25 find output with explanation.

Q10.Predict the Output of following Java Program.

```
class Base {
    public void show() {
      System.out.println("Base::show() called");
    }
}
class Derived extends Base {
    public void show() {
      System.out.println("Derived::show() called");
    }
}
public class Main {
    public static void main(String[] args) {
       Base b = new Derived();;
       b.show();
    }
}
```

Ans. Derived :: show() called

Q11. What is the output of the below Java program?

```
class Base {
    final public void show() {
      System.out.println("Base::show() called");
    }
}
class Derived extends Base {
    public void show() {
      System.out.println("Derived::show() called");
    }
}
class Main {
    public static void main(String[] args) {
       Base b = new Derived();;
       b.show();
    }
}
```

Ans . error

Q12.Find output of the program.

```
class Base {
    public static void show() {
        System.out.println("Base::show() called");
    }
}
class Derived extends Base {
    public static void show() {
        System.out.println("Derived::show() called");
    }
}
class Main {
    public static void main(String[] args) {
        Base b = new Derived();
        b.show();
    }
}
```

Ans.Error , need to add public with class Main

Q13.What is the output of the following program?

```
class Derived
{
    public void getDetails()
    {
        System.out.printf("Derived class ");
    }
}
public class Test extends Derived
{
    public void getDetails()
    {
        System.out.printf("Test class ");
        super.getDetails();
    }
    public static void main(String[] args)
    {
        Derived obj = new Test();
        obj.getDetails();
    }
}
```

Ans. Test class Derived class

Q14. What is the output of the following program?

```
class Derived
{
    public void getDetails(String temp)
    {
        System.out.println("Derived class " + temp);
    }
}
public class Test extends Derived
{
    public int getDetails(String temp)
```

```
    {
        System.out.println("Test class " + temp);
        return 0;
    }
    public static void main(String[] args)
    {
        Test obj = new Test();
        obj.getDetails("Name");
    }
}
```

Ans. Error

Q15.What will be the output of the following Java program?

```
    class test
{
        public static int y = 0;
}
class HasStatic
{
        private static int x = 100;

        public static void main(String[] args)
        {
                HasStatic hs1 = new HasStatic();
                hs1.x++;
                HasStatic hs2 = new HasStatic();
                hs2.x++;
                hs1 = new HasStatic();
                hs1.x++;
                HasStatic.x++;
                System.out.println("Adding to 100, x = " + x);
                test t1 = new test();
                t1.y++;
                test t2 = new test();
                t2.y++;
                t1 = new test();
                t1.y++;
                System.out.print("Adding to 0, ");
                System.out.println("y = " + t1.y + " " + t2.y + " " + test.y);
        }
}
```

Ans. Add public with class HasStatic, output is : Adding to 100, x=104
Adding to 0, y= 3 3 3

Q16.Predict the output

```
class San
{
 public void m1 (int i,float f)
 {
  System.out.println(" int float method");
 }
 public void m1(float f,int i);
  {
  System.out.println("float int method");
```

```
  }
  public static void main(String[]args)
  {
    San s=new San();
       s.m1(20,20);
  }
}
```

Ans : Compile time error : need to pass float in second argument.

Q17.What is the output of the following program?

```
public class Test
{
    public static void main(String[] args)
    {
        int temp = null;
        Integer data = null;
        System.out.println(temp + " " + data);
    }
}
```

Ans : Compilation error due to temp. that can't hold null value.

Q18.Find output

```
class Test {
    protected int x, y;
}

class Main {
    public static void main(String args[]) {
        Test t = new Test();
        System.out.println(t.x + " " + t.y);
    }
}
```

Ans. 0 0 Protected members can be accessed in same package, and integers are default zero for default constructor.

Q19.Find output

```
// filename: Test2.java
class Test1 {
        Test1(int x)
        {
                System.out.println("Constructor called " + x);
        }
}
class Test2 {
        Test1 t1 = new Test1(10);
        Test2(int i) { t1 = new Test1(i); }
        public static void main(String[] args)
        {
                Test2 t2 = new Test2(5);
        }
}
```

Ans : Constructor called 10
Constructor called 5

Q20.What will be the output of the following Java program?

```
class Main
{
 public static void main(String[] args)
  {
  int []x[] = {{1,2}, {3,4,5}, {6,7,8,9}};
  int [][]y = x;
  System.out.println(y[2][1]);
  }
}
```

Ans 7

Q21.What will be the output of the following Java program?

```
class A
{
    int i;
    public void display()
    {
        System.out.println(i);
    }
}
class B extends A
{
    int j;
    public void display()
    {
        System.out.println(j);
    }
}
class Dynamic_dispatch
{
    public static void main(String args[])
    {
        B obj2 = new B();
        obj2.i = 1;
        obj2.j = 2;
        A r;
        r = obj2;
        r.display();
    }
}
```

Ans. 2

Q22. What will be the output of the following Java code?

```
class A
{
    int i;
    void display()
    {
        System.out.println(i);
    }
}
```

```
class B extends A
{
    int j;
    void display()
    {
        System.out.println(j);
    }
}
class method_overriding
{
    public static void main(String args[])
    {
        B obj = new B();
        obj.i=1;
        obj.j=2;
        obj.display();
    }
}
```

Ans. 2

Q23.What will be the output of the following Java code?

```
class A
{
    public int i;
    protected int j;
}
class B extends A
{
    int j;
    void display()
    {
        super.j = 3;
        System.out.println(i + " " + j);
    }
}
class Output
{
    public static void main(String args[])
    {
        B obj = new B();
        obj.i=1;
        obj.j=2;
        obj.display();
    }
}
```

Ans. 2 3

Q24.What will be the output of the following Java program?

```
class A
{
    public int i;
    public int j;
```

```
    A()
    {
       i = 1;
       j = 2;
     }
  }
  class B extends A
  {
    int a;
    B()
    {
       super();
    }
  }
  class super_use
  {
    public static void main(String args[])
    {
       B obj = new B();
       System.out.println(obj.i + " " + obj.j)
    }
  }
```

Ans 1 2

Q 25. Find the output of the following program.

```
class Test
{
   int a = 1;
   int b = 2;

   Test func(Test obj)
   {
      Test obj3 = new Test();
      obj3 = obj;
      obj3.a = obj.a++ + ++obj.b;
      obj.b = obj.b;
      return obj3;
   }

   public static void main(String[] args)
   {
      Test obj1 = new Test();
      Test obj2 = obj1.func(obj1);

      System.out.println("obj1.a = " + obj1.a + " obj1.b = " + obj1.b);
      System.out.println("obj2.a = " + obj2.a + "  obj1.b = " + obj2.b);

   }
}
```

Ans. Obj1.a = 4 obj1.b=3
Obj2.a=4 obj1.b=3