Advanced Programming Lab

Assignment-9:                                  16/09/2020

Total number of programs: 15

**Due on 16/09/2020**

**Please update the progress of the code developed for all the exercises..**

# PROGRAM -1

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();
    }
}
```

| | |
|---|---|
| **A** | Derived::show() called |
| **B** | Base::show() called |

# PROGRAM -2

```java
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();

    }

}
```

**A**  Base::show() called

**B**  Derived::show() called

**C**  Compiler Error

**D**  Runtime Error

# PROGRAM -3

```
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();
    }
}
```

A  Base::show() called

B  Derived::show() called

C  Compiler Error

# PROGRAM -4

```
class Base {
    public void Print() {
        System.out.println("Base");
    }
}

class Derived extends Base {
    public void Print() {
        System.out.println("Derived");
    }
}

class Main{
    public static void DoPrint( Base o ) {
        o.Print();
    }
    public static void main(String[] args) {
        Base x = new Base();
        Base y = new Derived();
```

```
        Derived z = new Derived();
        DoPrint(x);
        DoPrint(y);
        DoPrint(z);
    }
}
```
Run on IDE

| A | Base |
|---|------|
|   | Derived |
|   | Derived |

| B | Base |
|---|------|
|   | Base |
|   | Derived |

| C | Base |
|---|------|
|   | Derived |
|   | Base |

| D | Compiler Error |
|---|----------------|

# PROGRAM -5

Predict the output of following program. Note that fun() is public in base and private in derived.

```
class Base {
    public void foo() {
System.out.println("Base"); }
}

class Derived extends Base {
    private void foo() {
System.out.println("Derived"); }
}

public class Main {
    public static void main(String args[]) {
        Base b = new Derived();
        b.foo();
    }
}
```

# PROGRAM -6

Which two classes use the Shape class correctly?

A. public class Circle implements Shape

{

    private int radius;

}

B. public abstract class Circle extends Shape

{

    private int radius;

```
    }

C. public class Circle extends Shape

    {

    private int radius;

    public void draw();

    }

D. public abstract class Circle implements Shape

    {

    private int radius;

    public void draw();

    }

E. public class Circle extends Shape

    {

    private int radius;

    public void draw()

    {

    /* code here */

    }

    }

F. public abstract class Circle implements Shape

    {

    private int radius;

    public void draw()

    {

    /* code here */

    }

    }
```

**A.** B,E

**B.** A,C

**C.** C,E

**D.** T,H

# PROGRAM -7

What will be the output of the following Java program?

```java
1.      class A
2.      {
3.          int i;
4.          void display()
5.          {
6.              System.out.println(i);
7.          }
8.      }
9.      class B extends A
10.     {
11.         int j;
12.         void display()
13.         {
14.             System.out.println(j);
15.         }
16.     }
17.     class inheritance_demo
18.     {
19.         public static void main(String args[])
20.         {
21.             B obj = new B();
22.             obj.i=1;
23.             obj.j=2;
24.             obj.display();
25.         }
26.     }
```

a) 0
b) 1
c) 2
d) Compilation Error

# PROGRAM -8

What will be the output of the following Java program?

```java
1.      class A
2.      {
3.          int i;
4.      }
5.      class B extends A
6.      {
7.          int j;
8.          void display()
9.          {
10.             super.i = j + 1;
11.             System.out.println(j + " " + i);
12.         }
13.     }
```

```
14.     class inheritance
15.     {
16.         public static void main(String args[])
17.         {
18.             B obj = new B();
19.             obj.i=1;
20.             obj.j=2;
21.             obj.display();
22.         }
23.     }
```
a)                                                            2                                    2
b)                                                            3                                    3
c)                                                            2                                    3
d) 3 2

# PROGRAM -9

What will be the output of the following Java program?

```
1.      class A
2.      {
3.          public int i;
4.          public int j;
5.          A()
6.          {
7.              i = 1;
8.              j = 2;
9.  }
10.     }
11.     class B extends A
12.     {
13.         int a;
14.         B()
15.         {
16.             super();
17.         }
18.     }
19.     class super_use
20.     {
21.         public static void main(String args[])
22.         {
23.             B obj = new B();
24.             System.out.println(obj.i + " " + obj.j)
25.         }
26.     }
```
a) 1 2
b) 2 1
c) Runtime Error
d) Compilation Error

# PROGRAM -10

**What will be the output of the following program?**

```
1
2
3   class A
4   {
5       String s = "Class A";
6   }
7
8   class B extends A
9   {
10      String s = "Class B";
11
12      {
13          System.out.println(super.s);
14      }
15  }
16
17  class C extends B
18  {
19      String s = "Class C";
20
21      {
22          System.out.println(super.s);
23      }
24  }
25
26  public class MainClass
27  {
28      public static void main(String[] args)
29      {
30          C c = new C();
31
32          System.out.println(c.s);
33      }
34  }
```

# PROGRAM -11

**What will be the output of this program?**

```
1   class A
2   {
3       static
4       {
5           System.out.println("THIRD");
6       }
7   }
8
9   class B extends A
10  {
```

```
 9      static
10      {
11          System.out.println("SECOND");
        }
12  }
13
14  class C extends B
15  {
16      static
17      {
18          System.out.println("FIRST");
        }
19  }
20
21  public class MainClass
22  {
23      public static void main(String[] args)
        {
24          C c = new C();
25      }
26  }
27
28
29
30
31
```

# PROGRAM -12

**What will be the output of the below program?**

```
 1  class A
 2  {
 3      public A()
 4      {
 5          System.out.println("Class A Constructor");
        }
 6  }
 7
 8  class B extends A
 9  {
        public B()
10      {
11          System.out.println("Class B Constructor");
12      }
13  }
14
15  class C extends B
    {
16      public C()
```

```
17      {
18            System.out.println("Class C Constructor");
19      }
20  }

21  public class MainClass
22  {
23      public static void main(String[] args)
24      {
25          C c = new C();
26      }
27  }
28
29
30
31
```

# PROGRAM -13

```
class X
{
    static void staticMethod()
    {
        System.out.println("Class X");
    }
}

class Y extends X
{
    static void staticMethod()
    {
        System.out.println("Class Y");
    }
}

public class MainClass
{
    public static void main(String[] args)
    {
        Y.staticMethod();
    }
}
```

# PROGRAM -14

**Below code is showing compile time error. Can you suggest the corrections?**

```
1
2      class X
3      {
4          public X(int i)
5          {
6              System.out.println(1);
7          }
8      }
9      class Y extends X
10     {
11         public Y()
12         {
13             System.out.println(2);
14         }
15     }
```

# PROGRAM -15

```
class M
{
  static
  {
    System.out.println('A');
  }

  {
    System.out.println('B');
  }

  public M()
  {
    System.out.println('C');
  }
}

class N extends M
{
  static
```

```java
    {
        System.out.println('D');
    }

    {
        System.out.println('E');
    }

    public N()
    {
        System.out.println('F');
    }
}

public class MainClass
{
    public static void main(String[] args)
    {
        N n = new N();
    }
}
```