1. What is a Class? Demonstrate with a simple example.
2. What is an Object? Demonstrate with a simple example.
3. Write a program to display any message:
4. Write a Java program to display default value of all primitive data types of Java.
5. Write a program to create a room class, the attributes of this class is roomno, roomtype, roomarea and ACmachine. In this class the member functions are setdata and displaydata. Lab Exercises Centre for Information Technology and Engineering, Manonmaniam Sundaranar University
6. Write a program create a class ‘simpleobject‘. Using constructor display the message.
7. Write a program to give the example for ‘this’ operator. And also use the ‘this’ keyword as return statement.
8. Write a program to demonstrate static variables, methods, and blocks. Explain the same.
9. Write a program for reuse class. For this program use the above ‘room class’ program.
10. Create class named as ‘a’ and create a sub class ‘b’. Which is extends from class ‘a’. And use these classes in ‘inherit’ class. Explain the same.
11. Write a program to give the example for method overriding concepts. Explain the same.
12. Write a program to give the example for ‘super’ keyword. Explain the same.
13. Write a program to create a class named shape. In this class we have three sub classes circle, triangle and square each class has two member function named draw () and erase (). Create these using polymorphism concepts.
14. Write a program to give a simple example for abstract class.
15. Write a program to create interface A in this interface we have two method meth1 and meth2. Implements this interface in another class named MyClass.
16. Write a program to give example for multiple inheritance in Java.
17. Write a program to create interface named test. In this interface the member function is square. Implement this interface in arithmetic class. Create one new class called ToTestInt in this class use the object of arithmetic class.
18. Create an outer class with a function display, again create another class inside the outer class named inner with a function called display and call the two functions in the main class.
19. The following Java applications contain errors. Point out the statement(s) that contain errors. Explain what each of the errors is, and how it can be fixed.

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| public class **OOPExercises** {  public static void main(String[] args) {  A objA = new A();  System.out.println("in main(): ");  System.out.println("objA.a = "+objA.a);  objA.a = 222;  }  } | **Point out the error(s) and how they can be fixed.** |
| public class **A** {  private int a = 100;  public void setA( int value) {  a = value;  }  public int getA() {  return a;  }  } //class A |

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| public class **OOPExercises** {  public static void main(String[] args) {  System.out.println("in main(): ");  System.out.println("objA.a = "+getA() );  setA(123);  }  } | **Point out the error(s) and how they can be fixed.** |
| public class **A** {  private int a = 100;  public void setA( int value) {  a = value;  }  public int getA() {  return a;  }  } //class A |

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| public class **OOPExercises** {  public static void main(String[] args) {  A objA = new A( );  double result;  result = objA.getA( );  System.out.println("objA.a = "+ result);  }  } | **Point out the error(s) and how they can be fixed.** |
| public class **A** {  private int a = 100;  public void setA( int value) {  a = value;  }  public int getA() {  return a;  }  } //class A |

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| public class **B extends A** {  private int a = 222;  public static void main(String[] args) {  System.out.println("in main(): ");  System.out.println("a = "+a );  a = 123;  }  } | **Point out the error(s) and how they can be fixed.** |
| public class **A** {  private int a = 100;  public void setA( int value) {  a = value;  }  public int getA() {  return a;  }  } //class A |

1. Show the output of the following applications.

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| public class **OOPExercises** {  public static void main(String[] args) {  A objA = new A();  B objB = new B();  System.out.println("in main(): ");  System.out.println("objA.a = "+objA.getA());  System.out.println("objB.b = "+objB.getB());  objA.setA (222);  objB.setB (333.33);  System.out.println("objA.a = "+objA.getA());  System.out.println("objB.b = "+objB.getB());  }  } | **Output:** |
| public class **A** {  int a = 100;  public A() {  System.out.println("in the constructor of class A: ");  System.out.println("a = "+a);  a = 333;  System.out.println("a = "+a);  }  public void setA( int value) {  a = value;  }  public int getA() {  return a;  }  } //class A | |
| public class **B** {  double b = 123.45;  public B() {  System.out.println("-----in the constructor of class B: ");  System.out.println("b = "+b);  b = 3.14159;  System.out.println("b = "+b);  }  public void setB( double value) {  b = value;  }  public double getB() {  return b;  }  } //class B | |



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| public class **OOPExercises** {  public static void main(String[] args) {  //A objA = new A();  B objB = new B();  System.out.println("in main(): ");  //System.out.println("objA.a = "+objA.getA());  System.out.println("objB.b = "+objB.getB());  //objA.setA (222);  objB.setB (333.33);  //System.out.println("objA.a = "+objA.getA());  System.out.println("objB.b = "+objB.getB());  }  } | **Output:** |
| public class **A** {  int a = 100;  public A() {  System.out.println("in the constructor of class A: ");  System.out.println("a = "+a);  a = 333;  System.out.println("a = "+a);  }  public void setA( int value) {  a = value;  }  public int getA() {  return a;  }  } //class A | |
| public class **B extends A** {  double b = 123.45;  public B() {  System.out.println("-----in the constructor of class B: ");  System.out.println("b = "+b);  b = 3.14159;  System.out.println("b = "+b);  }  public void setB( double value) {  b = value;  }  public double getB() {  return b;  }  } //class B | |



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| public class **OOPExercises** {  static int a = 555;    public static void main(String[] args) {  A objA = new A();  B objB = new B();  System.out.println("in main(): ");  System.out.println("a = "+a);  a = 444;  System.out.println("objB.a = "+objB.getA());  objA.setA (77777);  objB.rollBackA();  System.out.println("After roll back -----");  System.out.println("a = "+a);  System.out.println("objA.a = "+objA.getA());  System.out.println("objB.a = "+objB.getA());  }  } | **Output:** |
| public class **A** {  int a = 100;  public A() {  //System.out.println("in the constructor of class A: ");  //System.out.println("a = "+a);  a = 333;  //System.out.println("a = "+a);  }  public void setA( int value) {  a = value;  }  public int getA() {  return a;  }  } //class A | |
| public class **B** extends A {  private int a = 123;  public B() {  a = 2222;  }  public void rollBackA () {  a = super.getA();  }  public void setA( int value) {  a = value;  }  public int getA() {  return a;  }  } //class B | |



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| public class **OOPExercises** {  static int a = 555;    public static void main(String[] args) {  A objA = new A();  B objB1 = new B();  A objB2 = new B();  C objC1 = new C();  B objC2 = new C();  A objC3 = new C();  objA.display();  objB1.display();  objB2.display();  objC1.display();  objC2.display();  objC3.display(); }  } | **Output:** |
| public class **A** {  int a = 100;  public void display() {  System.out.printf("a in A = %d\n", a);  }  } //class A | |
| public class **B** extends A {  private int a = 123;  public void display() {  System.out.printf("a in B = %d\n", a);  }  } //class B | |
| public class **C** extends B {  private int a = 543;  public void display() {  System.out.printf("a in C = %d\n", a);  }  } //class C | |