**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

3.70 to 3.78

## Java

| | |
|---|---|
| **Section Id :** | 64065344903 |
| **Section Number :** | 9 |
| **Section type :** | Online |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 16 |
| **Number of Questions to be attempted :** | 16 |
| **Section Marks :** | 100 |
| **Display Number Panel :** | Yes |
| **Section Negative Marks :** | 0 |
| **Group All Questions :** | No |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |
| **Maximum Instruction Time :** | 0 |
| **Sub-Section Number :** | 1 |
| **Sub-Section Id :** | 64065395178 |
| **Question Shuffling Allowed :** | No |
| **Is Section Default? :** | null |

**Question Number : 134 Question Id : 640653668575 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

**THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL : PROGRAMMING CONCEPTS USING JAVA (COMPUTER BASED EXAM)"**

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?**
**CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

**(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)**

**Options :**

6406532239916. ✓ YES

6406532239917. ✗ NO

| | |
|---|---|
| **Sub-Section Number :** | 2 |
| **Sub-Section Id :** | 64065395179 |
| **Question Shuffling Allowed :** | Yes |
| **Is Section Default? :** | null |

**Question Number : 135 Question Id : 640653668576 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6 Max. Selectable Options : 0**

Question Label : Multiple Select Question

Which of the following is/are CORRECT about heap?

Choose the correct option(s).

**Options :**

6406532239918. ✓ Heap is used to store dynamically allocated data.

6406532239919. ✗ Activation records created for functions are allocated in heap.

6406532239920.

✓ Heap storage needs to be explicitly requested by the programmer.

6406532239921. ✗ A heap storage allocation cannot be deallocated in any way.

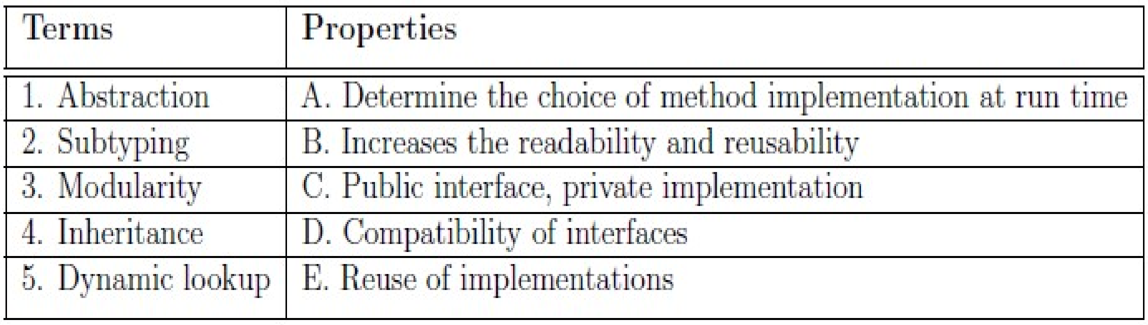
| | |
|---|---|
| **Sub-Section Number :** | 3 |
| **Sub-Section Id :** | 64065395180 |
| **Question Shuffling Allowed :** | Yes |
| **Is Section Default? :** | null |

**Question Number : 136 Question Id : 640653668577 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

Question Label : Multiple Choice Question

Match the following terms with their descriptions/properties.



| Terms | Properties |
|---|---|
| 1. Abstraction | A. Determine the choice of method implementation at run time |
| 2. Subtyping | B. Increases the readability and reusability |
| 3. Modularity | C. Public interface, private implementation |
| 4. Inheritance | D. Compatibility of interfaces |
| 5. Dynamic lookup | E. Reuse of implementations |

**Options :**

6406532239922. ✗ 1-B, 2-A, 3-C, 4-D, 5-E

6406532239923. ✗ 1-A, 2-B, 3-D, 4-E, 5-C

6406532239924. ✓ 1-C, 2-D, 3-B, 4-E, 5-A

6406532239925. ✗ 1-D, 2-C, 3-E, 4-A, 5-B

**Question Number : 137 Question Id : 640653668578 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

Question Label : Multiple Choice Question

Consider the Java program below.

```
public class FClass{
    public static void main(String[] args){
        int a[] = {10, 20, 30};
        int x = 0;
        for(int i : a){
            switch(i){
                case 10:
                    x = x + 10;
                    System.out.println(x);
                    break;
                case 20:
                    x = x + 20;
                    System.out.println(x);
                    break;
                case 30:
                    x = x + 30;
                    System.out.println(x);
                    break;
                default:
                    System.out.println(x);
            }
        }
    }
}
```

What will the output be?

**Options :**

6406532239926. ✖
```
10
40
70
```

6406532239927. ✔
```
10
30
60
```

6406532239928. ✖

```
10
30
60
60
```

6406532239929. ✖

```
10
30
60
10
```

**Question Number : 138 Question Id : 640653668579 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

Question Label : Multiple Choice Question

Consider the Java code given below.

```
interface Compiler{
  public default void compile(){
    System.out.println("Compiles");
  }
}
interface Interpreter{
  public default void interpret(){
    System.out.println("Interprets");
  }
}
class Language implements Compiler, Interpreter{
  public void compile(){
    System.out.println("Language specific compiler");
  }
}
public class Test {
  public static void main(String[] args) {
    Compiler c1 = new Language();
    c1.compile();
    c1.interpret();
  }
}
```

Choose the correct option.

**Options :**

6406532239930. ✗ This program generates the output:

```
Language specific compiler
Interprets
```

6406532239931. ✗ This program generates the output:

```
Compiles
Interprets
```

6406532239932. ✓ This program generates compiler error because `c1` of type `Compiler` cannot invoke method `interpret( )`.

6406532239933. ✗ This program generates compiler error because neither is class `Language` declared as abstract nor does it override method `interpret( )`.

**Question Number : 139 Question Id : 640653668583 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

Question Label : Multiple Choice Question

Consider the code given below.

```
class Student{
    public void audit() {
        System.out.println("Audit classes");
    }
}
class TeamLeader extends Student{
    public void monitor() {
        System.out.println("Monitors team");
    }
    public void mentor() {
        System.out.println("Mentors team");
    }
}
class SchoolLeader extends TeamLeader{
    public void monitor() {
        System.out.println("Monitors school");
    }
}
public class Test{
    public static void main(String[] args) {
        TeamLeader obj = new SchoolLeader();
        obj.audit(); //LINE 1
        obj.mentor();
        obj.monitor(); //LINE 2
    }
}
```

Choose the correct option.

**Options :**

6406532239946. ✗ LINE 1 generates compilation error because method `audit()` cannot be invoked on `obj`.

6406532239947. ✗ This code generates the below output followed by runtime Error at LINE 2 because there is ambiguity in which `monitor( )` method is being invoked.

```
Audit classes
Mentors team
```

6406532239948. ✓ This code generates the output:

```
Audit classes
Mentors team
Monitors school
```

This code generates the output:

```
Audit classes
Mentors team
Monitors team
```

6406532239949. ✖

**Question Number : 140 Question Id : 640653668585 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

Question Label : Multiple Choice Question

Consider the Java code given below.

```
interface Displayable{
    public default void display(){
        System.out.println("Displays digits");
    }
}
class Calculator implements Displayable{         //LINE 1
}
class SmartCalculator implements Displayable{
    public void display() {
        System.out.println("Displays alphabets and digits");
    }
}
public class Test{
    public static void main(String[] args) {
        Displayable d1 = new Calculator();
        d1.display();                             // LINE 2
        Displayable d2 = new SmartCalculator();
        d2.display();
    }
}
```

Choose the correct option.

**Options :**

6406532239954. ✖ Compiler error at LINE 1 because class Calculator is not abstract

6406532239955. ✓ This program generates output:

```
Displays digits
Displays alphabets and digits
```

6406532239956. ✗ This program generates output:

```
Displays digits
Displays digits
```

6406532239957. ✗ LINE 2 generates runtime error because method (`display`) is not defined for class `Calculator`

**Question Number : 141 Question Id : 640653668589 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

Question Label : Multiple Choice Question

Consider the code given below.

```
class Student{
    private String name;
    private int rollNo;
    public Student(String n, int r){
        name = n;
        rollNo = r;
    }
    /***---------------***/
      /* CODE SEGMENT */
    /***---------------***/
}
public class Test{
    public static void main(String[] args){
        Student s1 = new Student("Radha", 1);
        Student s2 = new Student("Raju", 2);
        System.out.println(s1 + "\n" + s2);
    }
}
```

Choose the correct option to fill in the CODE SEGMENT so that the output is:

```
Radha :  1
Raju :  2
```

**Options :**

6406532239970. ✗
```
public String toString(Object ob){
    return ob.name + " : " + ob.rollNo;
}
```

6406532239971. ✓
```
public String toString(){
    return name + " : " + rollNo;
}
```

6406532239972. ✗ No additional code is required in place of CODE SEGMENT.

6406532239973. ✗ This output will not be printed because Java throws an error when an object is tried to be printed using System.out.println.

**Sub-Section Number :** 4

**Sub-Section Id :** 64065395181

**Question Shuffling Allowed :** Yes

**Is Section Default? :** null

**Question Number : 142 Question Id : 640653668580 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 7**

Question Label : Multiple Choice Question

Consider the Java code given below. Identify the correct statement to fill in the blank at LINE 1, such that the output is: `Discount available`

```
interface Enquiry{
  public void printAvailability();
}
class Customer{
  // ...
  public Enquiry checkAmount(){
    // ...
    if(bill > 5000)
      return new PassedEnquiry();
    return new FailedEnquiry();
  }
  private class PassedEnquiry implements Enquiry{
    public void printAvailability(){
        System.out.println("Discount available");
    }
  }
  private class FailedEnquiry implements Enquiry{
    public void printAvailability(){
        System.out.println("No discount");
    }
  }
}

public class Test {
  public static void main(String[] args) {
    Customer c1 = new Customer(4500);          //bill of c1 is 4500
    Customer c2 = new Customer(7000);          //bill of c2 is 7000
    ______________________                     //LINE 1
  }
}
```

**Options :**

6406532239934. ✓ `c2.checkAmount().printAvailability();`

6406532239935. ✖ `c2.printAvailability();`

6406532239936. ✖ `c1.printAvailability();`

6406532239937. ✖ `c1.checkAmount().printAvailability();`

**Question Number : 143 Question Id : 640653668582 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 7**

Question Label : Multiple Choice Question

Consider the Java code given below.

```
class Student{
  String name;
  int[] marks;

  public Student(String n, int[] m){
    name = n;
    marks = m;
  }
  public Student(Student s){
    this.name = s.name;
    this.marks = s.marks;
  }
}
public class Test{
  public static void main(String[] args){
    int[] m  = {50, 70, 60};
    Student s1 = new Student("Siva", m);
    Student s2 = new Student(s1);
    s2.name= "Krishna";
    s2.marks[0] = 80;
    System.out.println(s1.name + "," +s1.marks[0]);
    System.out.println(s2.name + "," +s2.marks[0]);
  }
}
```

What will the output be?

**Options :**

6406532239942. ✖
```
Krishna,80
Krishna,80
```

6406532239943. ✔
```
Siva,80
Krishna,80
```

6406532239944. ✖
```
Siva,50
Krishna,80
```

6406532239945. ✖
```
Krishna,50
Siva,80
```

**Question Number : 144 Question Id : 640653668584 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 7**

Question Label : Multiple Choice Question

Consider the Java program below.

```
class A{
    void display(){
        System.out.println("Display A");
    }
}
class B extends A{
    void display(){
        super.display();
        System.out.println("Display B");
    }
    void display(String s){
        System.out.println("Display B." + s);
    }
}
class C extends B{
    void display(){
        super.display();
        System.out.println("Display C");
    }
    void display(String s){
        System.out.println("Display C." + s);
    }
}
class Example{
    public static void main(String[] args){
        B obj = new C();   // LINE 1
        obj.display();
        obj.display("Successful!");   // LINE 2
    }
}
```

Choose the correct option.

**Options :**

6406532239950. ✓ The program generates output:

```
Display A
Display B
Display C
Display C.Successful!
```

6406532239951. ✗ LINE 1 generates compilation error because a variable of type B cannot refer to an object of type C.

This code generates the below output followed by runtime Error at `LINE 2` because there is ambiguity in which `display( )` method is being invoked.

```
Display B
Display C
Display C.Successful!
```

6406532239952. ✖

The program generates output:

```
Display A
Display B
Display B.Successful!
```

6406532239953. ✖

**Question Number : 145 Question Id : 640653668586 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 7**

Question Label : Multiple Choice Question

Consider the code given below.

```
interface Teachable{
    public default void teaches(){
      System.out.println("Teaches");
    }
    public void manages();
}
abstract class Teacher implements Teachable{
    public void teaches() {
        System.out.println("Teach subjects");
    }
}
class HOD extends Teacher{
    public void manages() {
        System.out.println("Manages");
    }
}
public class Main {
    public static void main(String[] args) {
        Teachable obj1 = new HOD();  // LINE 1
        Teacher obj2 = new HOD();
        obj2.teaches();
        obj2.manages(); // LINE 2
    }
}
```

Choose the correct option.

**Options :**

6406532239958. ✓ This code generates the output:

```
Teach subjects
Manages
```

6406532239959. ✗ This code generates the output:

```
Teaches
Manages
```

6406532239960. ✗ `LINE 1` generates compilation error because a variable of type `Teachable` cannot refer to an object of type `HOD`.

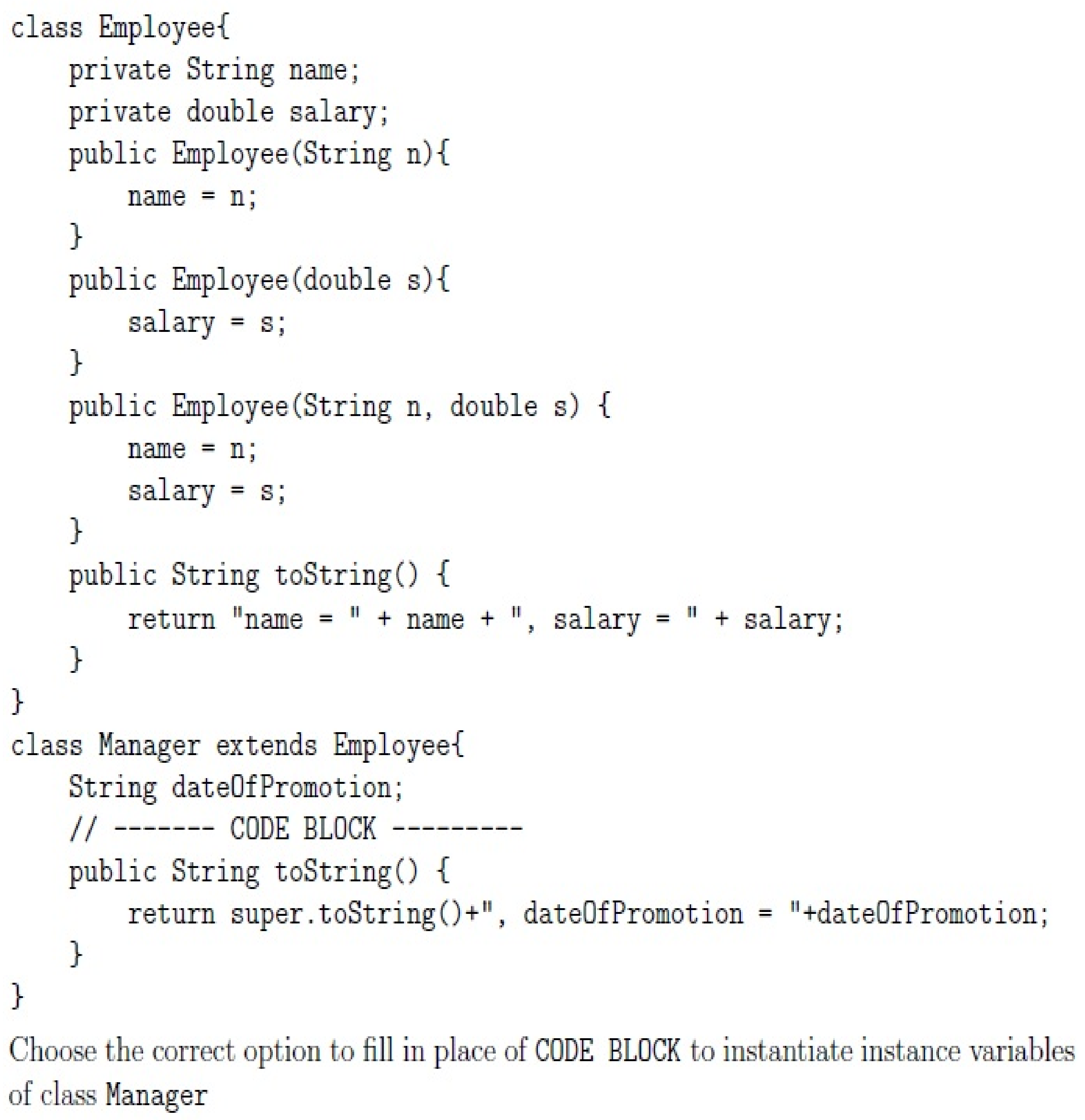
6406532239961. ✗ `LINE 2` generates compilation error because the method `manages()` cannot be invoked on `obj2`

**Question Number : 146 Question Id : 640653668588 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 7**

Question Label : Multiple Choice Question

Consider the Java code given below.

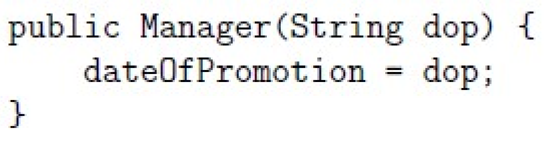


```
class Employee{
    private String name;
    private double salary;
    public Employee(String n){
        name = n;
    }
    public Employee(double s){
        salary = s;
    }
    public Employee(String n, double s) {
        name = n;
        salary = s;
    }
    public String toString() {
        return "name = " + name + ", salary = " + salary;
    }
}
class Manager extends Employee{
    String dateOfPromotion;
    // ------- CODE BLOCK ---------
    public String toString() {
        return super.toString()+", dateOfPromotion = "+dateOfPromotion;
    }
}
```

Choose the correct option to fill in place of CODE BLOCK to instantiate instance variables of class Manager

**Options :**

6406532239966. ✖



```
public Manager(String dop) {
    dateOfPromotion = dop;
}
```

6406532239967. ✓

```
public Manager(String name, double salary, String dop) {
    super(name, salary);
    dateOfPromotion = dop;
}
```

6406532239968. ✖

```
public Manager(String name, double salary, String dop) {
    name = name;
    salary = salary
    dateOfPromotion = dop;
}
```

6406532239969. ✖

```
public Manager(String name, double salary, String dop) {
    this.name = name;
    this.salary = salary;
    dateOfPromotion = dop;
}
```

| | |
|---|---|
| **Sub-Section Number :** | 5 |
| **Sub-Section Id :** | 64065395182 |
| **Question Shuffling Allowed :** | Yes |
| **Is Section Default? :** | null |

**Question Number : 147 Question Id : 640653668587 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 8**

Question Label : Multiple Choice Question

Consider the code given below.

```
class Employee{
    private int id;
    private static double salary = 100;
    public Employee(int i){
        id = i;
    }
    public final double bonus(){
        return 0.1 * salary;
    }
}
class Manager extends Employee{
    public Manager(int x){
        super(x);
    }
    public final double bonus(){ // LINE 1
        return 0.2 * salary;  // LINE 2
    }
}
public class Test{
    public static void main(String[] args){
        Employee e1 = new Manager(001); // LINE 3
        Manager m1 = new Employee(005); // LINE 4
        e1.bonus();
        m1.bonus();
    }
}
```

Which of the following statements is FALSE?

**Options :**

6406532239962. ✖ LINE 1 generates compilation error because the method `bonus()` cannot be overridden.

6406532239963. ✖ LINE 2 generates compilation error because instance variable `salary` cannot be accessed in class `Manager`.

6406532239964. ✔ LINE 3 generates compilation error because a variable of type `Employee` cannot refer to an object of type `Manager`.

6406532239965. ✖ LINE 4 generates compilation error because a variable of type `Manager` cannot refer to an object of type `Employee`.

**Question Number : 148 Question Id : 640653668590 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 8**

Question Label : Multiple Choice Question

Consider the code given below.

```
interface Iterator{
    public boolean has_next();
    public Object get_next();
}
abstract class Printable{
    public abstract void print();
}
class CustomerList{
    private class Customer extends Printable{
        private String name, billno;
        public Customer(String n, String b) {
            //initialize name and billno
        }
        public void print() {
            System.out.println(billno + ", " + name);
        }
    }
    private class CustIter implements Iterator{
        private int indx;
        public CustIter() {
            //constructor
        }
        public boolean has_next() {
            //if next element available in list return true; else false
        }
        public Object get_next() {
            //return next element from list
        }
    }
    public Iterator getIterator() {
        return new CustIter();
    }
    private final int limit = 3;
    private Customer[] list = { new Customer("Abhishek", "C1001"),
    new Customer("Hari", "C1002"), new Customer("Sneha", "C1003")};
}
public class IterTest{
    public static void main(String[] args) {
        CustomerList cList = new CustomerList();
        Iterator iter = cList.getIterator();
        while(iter.has_next()) {
            ____________________________________;    //LINE 1
        }
    }
}
```

Identify the appropriate statement to fill in the blank at LINE 1, such that the output is:

```
C1001, Abhishek
C1002, Hari
C1003, Sneha
```

**Options :**

6406532239974. ✓ `((Printable)iter.get_next()).print()`

6406532239975. ✗ `((Customer)iter.get_next()).print()`

6406532239976.

✖ `((CustomerList)iter.get_next()).print()`

6406532239977. ✖ `iter.get_next().print();`

**Sub-Section Number :** 6

**Sub-Section Id :** 64065395183

**Question Shuffling Allowed :** Yes

**Is Section Default? :** null

**Question Number : 149 Question Id : 640653668581 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 7 Max. Selectable Options : 0**

Question Label : Multiple Select Question

Consider the code given below that checks whether two complex numbers are the same. Method `equals` is overridden to compare two `ComplexNumber` objects as follows. If two complex numbers have the same real part and imaginary part, then they are the same. Choose the correct option(s) to fill in place of `CODE BLOCK` so that the output is:

`c1, c2 are same`

```
class ComplexNumber{
    private int real; // real part
    private int img;  // imaginary part

    //Constructor to initialize instance variables

    public boolean equals(Object obj) {
        // CODE BLOCK
    }
}
public class Test {
    public static void main(String[] args) {
        ComplexNumber c1 = new ComplexNumber(3, 4);
        ComplexNumber c2 = new ComplexNumber(3, 4);
        if(c1.equals(c2))
            System.out.println("c1,c2 are same");
        else
            System.out.println("c1,c2 are different");

    }
}
```

**Options :**

6406532239938. ✖

```
if(obj instanceof ComplexNumber) {
    if(this.real == obj.real && this.img == obj.img)
        return true;
}
return false;
```

6406532239939. ✖

```
if(this.real == obj.real && this.img == obj.img)
    return true;
return false
```

```
if(obj instanceof ComplexNumber) {
    ComplexNumber c = obj;
    if(this.real == c.real && this.img == c.img)
        return true;
}
```
6406532239940. ✗
```
return false;
```

```
if(obj instanceof ComplexNumber) {
    ComplexNumber c = (ComplexNumber) obj;
    if(this.real == c.real && this.img == c.img)
        return true;
}
```
6406532239941. ✓
```
return false;
```

## AppDev2

| | |
|---|---|
| **Section Id :** | 64065344904 |
| **Section Number :** | 10 |
| **Section type :** | Online |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 17 |
| **Number of Questions to be attempted :** | 17 |
| **Section Marks :** | 50 |
| **Display Number Panel :** | Yes |
| **Section Negative Marks :** | 0 |
| **Group All Questions :** | No |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |
| **Maximum Instruction Time :** | 0 |
| **Sub-Section Number :** | 1 |
| **Sub-Section Id :** | 64065395184 |
| **Question Shuffling Allowed :** | No |