

Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/MCA/SEM-5/MCAE-503B/2012-13**

**2012**

**OBJECT ORIENTED PROGRAMMING WITH JAVA**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives from the following :

10 × 1 = 10

i) double x = 0;

x = ( check ( ). equals ( "1" ) ) ? getSales ( ) : nextStore ( );

What datatype could be returned by method check ( ) as shown above ?

- a) int
- b) boolean
- c) String
- d) byte.

ii) Which one of the following is NOT a valid java.lang.String declaration ?

- a) String my String = new String ( "Hello" );
- b) String my String = new String ( 5 );
- c) String cde = "cde";
- d) String my String = new String ( );



- iii) Local variables in Java are stored in
- a) Heap
  - b) Native Area
  - c) Method Area
  - d) Stack.
- iv) What will be the output of the following code segment ( assuming that the object 'ct' gets stored in the address location 2345 ) ?

```
class Class Test {  
    public String to String ( ) {  
        return "Class Test";  
    }  
    public static void main ( String [ ] args ) {  
        Class Test ct = new Class Test ( );  
        System.out.println ( ct );  
    }  
}
```

- a) Class Test @ 2345
  - b) Error
  - c) Class Test
  - d) ct.
- v) Which statement about static inner classes is true ?
- a) Static inner classes may access any of the enclosing classes members.
  - b) Static inner classes may not be instantiated outside of the enclosing class.
  - c) Static inner classes do not have a reference to the enclosing class.
  - d) Static inner classes are created when the enclosing class is loaded.



vi) Consider the following code

```
package B;

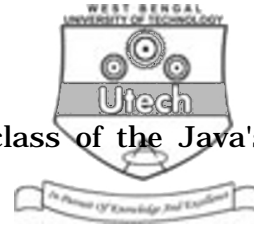
public class A {

    int getSquare ( int i ) { return i * i; }

}
```

Referring to the above, what classes can access method getSquare () in class A ?

- a) Class A
  - b) Class A and classes in package B only
  - c) Class A, all subclasses of A and classes in package B only
  - d) Class A and its subclasses only.
- vii) How you have a "try" block that invokes methods that throw two different exceptions ?
- a) Catch one exception in a "catch" block and the other in a "finally" block.
  - b) Setup nested "catch" blocks for each exception.
  - c) Catch one exception in a "catch" block and the other via the return value.
  - d) Include a "catch" block for each exception.
- viii) Which one of the following is a limitation of subclassing the Thread class ?
- a) You must catch the Thread Death exception
  - b) You must implement the Threadable interface
  - c) You cannot have any static methods in the class
  - d) You cannot subclass any other class.



- ix) Which one of the following is not a class of the Java's collections framework ?
- a) Abstract List
  - b) Abstract Sequential List
  - c) Abstract Collection
  - d) Abstract Hash Set.
- x) Which code segment loads and plays a sound in an applet ?
- a) `get Applet Context ( ).get AudioClip ( new URL ( get Document Base ( ). toString ( ) + "/jawas.wav" ) ).start ( )`
  - b) `Play ) getDocumentBase ( ), "jaws.wav" );`
  - c) `getAudioClip (new URL (getDocumentBase ( ). toString ( ) + "/jaws.wav" ) ). play ( );`
  - d) `getAppletContext ( ). play Audio ( new URL (getDocumentBase ( ). toString ( ) + "/jaws.wav" ) );`

**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

2. What are the features of Java ? Explain in brief.  
What is encapsulation ? Explain with the help of an example using JAVA.  $2 + 1 + 1 + 1$
3. What is JVM ? Why is it needed ? Explain method overloading and overriding. Differentiate between notify and notify ALL method.  $1 + 1 + 2 + 1$



4. What do you mean by constructor overloading in java ? Explain with an example. List special properties of constructors. 3 + 2
5. What is the difference between final, finally and finalize keywords in JAVA ? What are Applets ? Explain how applets are different from an application. 3 + 1 + 1
6. What is a final variable ? Can you define a final variable without supplying its value ? What is importance of exception handling mechanism in Java ? 1 + 2 + 2

**GROUP - C**

**( Long Answer Type Questions )**

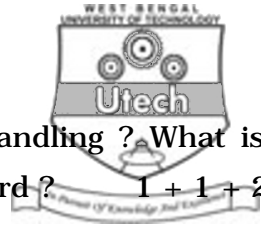
Answer any *three* of the following. 3 × 15 = 45

7. a) What are *constructors* ? What is meant by constructor *overloading* ? Explain with an example. 2 + 5
- b) Write a Java class CountPrintArgs to print the number of arguments passed on the command line as well as the 1st letter of the arguments. For example, if the command line arguments are : "Mango Cucumber Apple" then the output will be :

No. of Arguments = 3

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Write the accompanying main method and complete the program. 8



8. a) What is an event ? What is event handling ? What is the role of event listeners in this regard ? 1 + 1 + 2
- b) How can we pass parameters to an Applet from a HTML document ? 4
- c) Show by writing a complete code along with the output how multiple inheritance is implemented in Java. What is static import ? 6 + 1
9. a) Write a short non Life Cycle of an applet. 5
- b) What are local applet and remote applet ? How do applets differ from application programs ? 3 + 2
- c) Write applets to draw the following shape : 2 + 3
- i) Rectangle with rounded corner
- ii) Square inside a circle.
10. a) What is the difference between method overloading and method overriding ? Illustrate with an example. 4
- b) What is partial implementation of an interface ? 2
- c) Create a class called *Three DObject* and derive the classes *Box*, *Cube* and *Cylinder* from it. The class *ThreeDObject* has methods *wholeSurfaceArea ( )* and *volume ( )*. Override these two methods in each of the derived classes to calculate the volume and whole surface area of each type of three dimensional objects. The dimensions of the objects are to be taken from the user and passed through the respective constructors of each derived class. Write a main method to test these classes. 9



11. Write short notes on any *three* from the following :  $3 \times 5 = 15$

- a) Interface
- b) Exception handling
- c) Run-time polymorphism in Java.
- d) Inter-thread communication.
- e) Container Classes.

