MCAE-503B

OBJECT ORIENTED PROGRAMMING WITH JAVA

Time Allotted: 3 Hours   Full Marks: 70

The questions are of equal value.
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. Answer all questions. $10 \times 1 = 10$

(i) What is the result of attempting to compile and run the program?

```
public class Test {
    public static void main(String [] args) {
    int x = 0, y = 0;
        x = 5 + y++;
        System.out.print(x + "" + y);
        x = 0;
        y = 0;
        x = 5 + ++y;
        System.out.print(x + "" + y);
    }//end of main
}//end of test class
```

(A) 5161   (B) 6161
(C) 671   (D) none of these

5247   1   [Turn over]

CS/MCA/odd/Sem-5th/MCAE-503B/2014-15

(ii) What will be the output:

```
public class Test{
        int i;
        public Test(){System.out.println("Hello "+" i ="+i); }
        public Test(int w){
                this();
        }
        public static void main(String args[]) {
                Test obj = new Test(50);
        }//end of main
}//end of test class
```

(A) Hello i=0   (B) Hello i=50
(C) Compilation error   (D) none of these

(iii) What will be the output

```
class A{
        String s1 ="A.s1";
        String s2 ="A.s2";
}
Class B extends A{
        String s1 = "B.s1";
}
public class Test{
public static void main(String [] args){
        B b1 = new B();
        A a1 = b1;
        System.out.println(a1.s1+" "+a1.s2);
}//end of main
}//end of test class
```

(A) A.s1 A.s2   (B) B.s1 A.s2
(C) A.s1 B.s1   (D) none of these

(iv) Three of the methods are incorrectly declared, which are they?

```
abstract class abstractA {
        public void test1();
        public final void test2() {};
        public static void test3() {};
        public abstract static void test4();
        public abstract final void test5();
}
```

(A) test1, test2 and test4   (B) test2, test4 and test5

(C) test1, test4 and test5   (D) none of these

(v) What will be the output:

```
abstract interface IOne{ //line 1
        final int x =100;          //line 2
        void m l();
        public static class AOne{} //line 3
}
```

(A) compilation error at line 1   (B) compilation error at line 2

(C) compilation error at line 3   (D) no compilation error

(vi) Which class declaration results in compilation error:

```
class Z{
        void m(){
        abstract class A{ }     //line 1
        final class B{ }                //line 2
        private class C{ }    //line 3
        public class  D { }        //line 4
        }
}
```

(A) line 1   (B) line 2

(C) line 3   (D) line 3 and line 4

(vii) What will be the output:

```
public class Test{
public static void main(String [] args){
        System.out.print("1");
        try{
                return;
        }catch(Exception e){
                System.out.print("2");
        }finally{
                System.out.print("3");
        }
        System.out.print("4");
}//end of main
}//end of test class
```

(A) 1234   (B) 14   (C) 134   (D) 13

(viii) What is the result of attempting to compile and run the program

```
class B{
        private String name;
        public B(String s){
                name =s;
        }
        protected void finalize(){
                System.out.print(name);
        }
}
class E{
        public static void m(){
                B x1 = new B("X");
                B y1 = new B("y");
        }
}
public class Test {
 public static void main(String[] args){
        E.m();
        System.gc();
 }//end of main
}//end of test class
```

(A) YX   (B) prints YYXX (C) prints nothing (D) none of these

(ix) What will be output:

```
public class Test{
        public static void main (String [] args){
                String s = "";
                Integer x = 5;
                String Buffer sb = new String Buffer();
                if (x < 15)
                        s.concat("Hi");
                else
                        sb.append("Hello");
                System.out.print(s + sb);
        }//end of main
}//end of test class
```

(A) Hi   (B) hello

(C) compilation error   (D) no output

(x) Given the following code

File f = new File("myfile.txt");
What method will cause the file "myfile.txt" to be created in the underlying operating system?

(A) f.write();   (B) f.close();   (C) f.flush();   (D) none of these

GROUP B
(Short Answer Type Questions)

Answer any *three* questions.   3×5 = 15

2. Why does Java have two ways to create child threads (by extending Thread or   5
    implementing Runnable) and which approach is better?

3. Distinguish between the following terms: $2\frac{1}{2}+2\frac{1}{2}$

    (a) Abstract Class and Interface

    (b) 'throws' and 'throw'

5247   5   [Turn over]

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4. What are the properties of a constructor? Explain the use of overloaded constructors with the help of an example. $1\frac{1}{2}+3\frac{1}{2}$

5. Write a program in JAVA that creates a Child Thread of main using Runnable interface and uses the following methods: 5

   (i) getName()

   (ii) setName()

   (iii) setPriority()

6. What is JAVA Virtual Machine? What is the difference between the JAVA method and native method?   5

GROUP C
(Long Answer Type Questions)

Answer any *three* questions. $3\times15 = 45$

7. (a) What is a package in JAVA?   1+2+(3+3) +6

   (b) What are the benefits of organizing classes into package?

   (c) How can you create your own package and add classes in that? Explain with the help of an example

   (d) Explain how javaget benefited by using Interface with the help of an example

8. Write short note on any *three* of the following 3×5

   (i) Wrapper Class

   (ii) String Tokenizer Class

   (iii) Inter Process Communication

   (iv) Object Oriented Concept

9. (a) Explain the life cycle an Applet.   3+(3+3)+6

   (b) List various attributes of Applet tag used in HTML. Explain the purpose of these attributes

   (c) Write a Java program that uses the draw polygon () method of Graphics class to draw a triangle with endpoints (25, 30); (75, 80) and (50, 50).

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10.(a) What are the uses of exception handling in JAVA?   2+4+6+3

   (b) Write a program using java that handles an exception "Entry of negative age of a person".

   (c) Write a Multithreading program to generate the square roots of the first 30 natural numbers using Runnable interface

   (d) What do you mean by 'Synchronization'? Why do we need it?

11.(a) Write an application that creates a text field and text area and add button. When   5+3+3+4
   you click on the add Button the contents of the text field is moved to the Text area.

   (b) How the garbage collection can be done in java heap?

   (c) What are the different types of the inner class? Illustrate with an example

   (d) Write a program that displays all integers between the low and high that are sum of cube of their digits. In other words find all numbers xyz such that $xyz = x^3 + y^3 + z^3$, for example $153 = 1^3 + 5^3 + 3^3$. Try 100 for low and 1000 for high.

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CS/MCA/ODD SEM/SEM-5/MCAE-503B/2016-17

Maulana Abul Kalam Azad University
of Technology, West Bengal

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : MCAE-503B

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 for any *ten* of the following :   10 × 1 = 10

   i)   What will be the output of the following program when it is executed with the command line argument ?

       java contest how are you

       class contest {

           public static void main(String args[]) {

           System.out.println(args[1]); } }

   a) contest   b) how

   c) are   d) you.

5/50228   [Turn over

CS/MCA/ODD SEM/SEM-5/MCAE-503B/2016-17

ii) What will happen when you compile and run the programs following ?

```
public class myclass   {
        public static void main(String args)    {
                System.out.println("hello word"); }   }
```

a) compilation error   b) hello world

c) Hello world   d) Hello World.

iii) int k = 5;

System.out.println("Hello"+ k + 5);

a) Hello 10   b) Hello 55

c) hello 10   d) compiler error.

iv) int p = 3, q = 6 ;

System.out.println(p +++ q);

a) 9   b) 10

c) 11   d) compiler error.

v) int p = 3;

For(p = 0 ; p < 10 ; p = p + 2) ;

System.out.println(p);

a) 0 2 4 6 8   b) 2 4 6 8

c) 10   d) 4 6 8 10.

5/50228   2

vi)   int x = 2;

for (; x < 5 ;)

System.out.println(j++);

a)   2 3 4   b)   compiler error

c)   runtime error   d)   infinite loop.

vii)   int a[]= { 1, 2, 3, 4, 5 };

System.out.println(a.length);

a)   5

b)   compiler error

c)   need to import some package

d)   runtime error.

viii)   String s1="java"

System.out.println(s1.indexOf('v'));

a)   1   b)   2

c)   3   d)   none of these.

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ix) String s="Hello"

System.out.println(s.charAt(0));

a) H   b) h

c) error   d) none of these.

x) In Java Applet, start() method may be invoked

a) once

b) twice

c) many times

d) none of these.

xi) JVM stands for

a) Java Virtual Machine

b) Java Visual Machine

c) Java Vision Machine

d) none of these.

xii) Which keyword is used in java to define a constant ?

a) Static   b) Final

c) Public   d) None of these.

xiii)   String S="5"

System.out.println(s.charAt(0));

a) 5   b) S

c) error   d) none of these.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. What is constructor ? Differentiate between 'method' & 'constructor'. Define copy constructor.   1 + 3 + 1

3. What do you mean by 'Class & 'Object' ? Give example. What is wrapper class ?   3 + 2

4. What are different states in the life cycle of applet ? Explain.

CS/MCA/ODD SEM/SEM-5/MCAE-503B/2016-17

5. Compare and contrast "String" and "StringBuffer". How does "Scanner" work ? 2 + 3

6. Explain the private & protected modifiers in brief. What is dynamic method dispatch ? 2 + 3

7. Differentiate between final, finally and finalize in java.

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following. 3 × 15 = 45

8. a) Write a program in java to reverse a string. 7

   b) Write a program in java to input a number from the command line and find whether it is a prime or not.

   8

9. a) Why is inheritance important for an OOP ? 2

   b) Define different types of inheritance with example. 4

   c) Explain the usage of 'this' and 'super' keyword in java program. 3 + 3

   d) Explain the role of template. 3

10. a) Describe applet life cycle.   3

    b) Write a program to show all the steps of applet life

       cycle.   5

    c) What are the different attributes on applet tag ?   5

    d) What is local applet ?   2

11. Write short notes on any *three* of the following :   3 × 5

    a) JVM

    b) Garbage collection

    c) Package

    d) Runtime polymorphism

    e) Thread priority.

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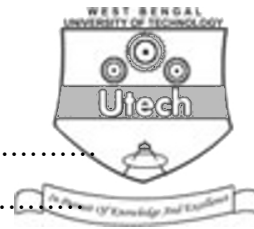
Name : ……………………………………………………

Roll No. : ……………………………………………………

Invigilator's Signature : ……………………………………

CS/MCA/SEM-5/MCAE-503B/2010

2010

OBJECT ORIENTED PROGRAMMING WITH JAVA

Time Allotted : 3 Hours   Full Marks : 70

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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 for any *ten* of the following :

$10 \infty 1 = 10$

i)   int j;

for (int i = 0 ; 1 < 14 ; i ++) {

if (i < 10 {

j = 2 + i ;

}

system.out.println ("j :" + j + "i :" + i) ;

}

What is illegal in the above code ?

a)   Integer 'j' is not initialized

b)   Nothing

c)   You cannot declare integer 'i' inside the for-loop declaration

d)   The syntax of the 'if' statement is incorrect

e)   You cannot print integer values without converting them to strings.

ii)   Which one of the following is a valid declaration of an applet ?

a)   Public class MyApplet extends java.applet.Applet {

b)   Public Applet MyApplet {

c)   Public class MyApplet extends applet implements Runnable {

d)   Abstract class MyApplet extends java.applet.Applet {

e)   Class MyApplet implements Applet {

iii)   What will be the output of the following line ?

System.out.println ("The full marks is : "+ 17 + 3) ;

a)   20

b)   17 + 3

c)   173

d)   371

e)   None of these.

iv) Which one of the following statements is *False* ?

   a) Java supports multi-threaded programming

   b) Threads in a single program can have different priorities

   c) Mltiple threads can manipulate files and get user input at the same time

   d) Two threads can never react on the same object at the same time

   e) None of these.

v) What is the value of *Y* ?

   int Y = 8/3

   a) 1

   b) 2.6666667

   c) 3

   d) 2

   e) None of these.

vi) Which one of the following is the equivalent of main( ) in a thread ?

   a) start( )

   b) go( )

   c) run( )

   d) begin( )

   e) The class constructor.

vii) What does it mean if a method is final synchronized ?

    a)   Methods which are synchronized cannot be final

    b)   This is the same as declaring the method private

    c)   Only one synchronized method can be invoked at a time for the entire class

    d)   The method cannot be overridden and is always threadsafe

    e)   All final variables reference in the method can be modified by only one thread at a time.

viii) An interface can never be private or protected.

    a)   True

    b)   False

    c)   Sometimes true

    d)   Sometimes false

    e)   None of these.

ix) Class implementing that interface should

    a)   necessarily be an abstract class

    b)   have the method public abstract void someMethod( ) ;

    c)   have the method public void someMethod( ) which has to throw an exception which is a subclass of java.lang.Exception

    d)   should have the method public void someMethod( ) which need not throw an Exception

    e)   none of these.

x) A .... is a variable that may not be serialized.

   a) local variable

   b) transient variable

   c) instance variable

   d) class variable

   e) none of these.

xi) Inheritance can be prevented by the .... keyword.

   a) static

   b) super

   c) final

   d) this

   e) none of these.

xii) Interface should be declared as

   a) protected

   b) public

   c) private

   d) default

   e) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 ∞ 5 = 15

2. What is byte code ? How does JVM help to implement the platform independence nature ?   2 + 3

3. What is 'this' keyword ? What is constructor ? What are the benefits of using constructor rather than function ?   1 + 1 + 3
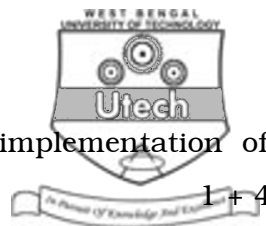
4. What is 'super' keyword ? Explain the implementation of super with a suitable example. 1 + 4

5. Explain the difference between throw and throws. What is chained exception ? Give an example. 1 + 2 + 2

6. a) Can you set priorities in a thread ? Explain.

   b) What do you mean by synchronization ? 3 + 2

GROUP – C

(Long Answer Type Questions)

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

7. a) What is method overriding ?

   b) "Method overriding can be prevented in Inheritance." Justify with example.

   c) What is wrapper class ? 2 + 10 + 3

8. a) Explain the Applet Life Cycle.

   b) "Applet class never declared as private." Why ?

   c) Develop an Applet class that receives n number of values as input from the user and displays the maximum, minimum and average numbers. 4 + 4 + 7

9. a) Define the term 'Runnable Interface'.

   b) Why is interface implemented by all threads ?

   c) Write a program to implement the deadlock situation using thread. 3 + 2 + 10

10. a) What is package ?

 b) Explain the different types of package.

 c) Design a package that contain the class Worker and another package to contain the interface Wages. Now write a program to display the details of workers along with their wages by using the above mentioned package and interface.

11. Write short notes on any *three* of the following :   3 ∞ 5

 a) Inter-thread Communication

 b) AWT

 c) Abstract Class

 d) Garbage Collection

 e) Dynamic Method Dispatch.

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Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/MCA/SEM-5/MCA-E-503B/2011-12

2011

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 for the following :

$$10 \times 1 = 10$$

   i)   What is the result of attempting to compile and run the
        program ?

```
public class Test{
    public static void print(Integer arg){
            System.out.print("Integer");
    }
    public void print(int arg){
            System.out.print("int");
    }
    public static void main(String[] arg){
        print(new Integer(3));
    }//end of main
}//end of test class
```

   a)   int   b)   integer

   c)   compilation error   d)   none of these.

5226   [Turn over

ii) What will be the output ?

```
public class Ques{

    private int i;

    public Ques incre(){i ++;return new
                                        Ques();}

    public void show(){ System.out.println
                                    ("i=" +i); }

    public static void main(String[]args){

        Ques Q1 = new Ques();
                q1.incre().incre().show();}}
```

a) i = 2   b) i = 3

c) compilation error   d) i = 0.

iii) int i = "hello" ; what type of exception java throws ?

a) IllegalArgumentException

b) NumberFormatException

c) IntegertoStringCastingException

d) CastingException.

iv) The method used in Java which waits for the thread to die is

a) wait()   b) destroy()

c) die()   d) join()

v) Which code declares class B belong to the package1.mypackage

   a) package package1 ; package mypackage

   b) import package1.* ;

   c) package package1.mypackage.B ;

   d) package package1.mypackage ;

vi) Consider the following statements :

```
int a=15, b=20;

a=((a<b)?(a+b):(a-b);
```

What will be the value of *a* after executing these statements ?

   a) 10

   b) 25

   c) 15

   d) 5

   e) error, cannot be executed.

vii) Multiple inheritance is implemented in Java by

   a) extending two or more classes

   b) extending one class and implementing one or more interfaces

   c) implementing two or more interfaces

   d) all of these.

viii) Difference between String and StringBuffer class is

    a) String object can be extendable but StringBuffer object cannot be extendable

    b) String object can be extendable but StringBuffer object can be expandable

    c) both are same

    d) none of these.

ix) What is immediate superclass of applet class ?

    a) Panel

    b) Object

    c) Interface

    d) None of these.

x) super() is used to

    a) access superclass constructor within subclass constructor

    b) access superclass method within subclass constructor

    c) both (a) and (b)

    d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. Create an array that holds the integer, string, double information.

3. What is the checked and unchecked exception ?   Explain with proper examples.

4. What is JVM ?   Java is platform-independent language. Explain.   2 + 3

5. What is polymorphism ?   What are the types of polymorphism ?   2 + 3

6. What is threading ?   Explain how you can synchronize multiple threads in Java ?

GROUP – C

(Long Answer Type Questions)

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

7. a) Write a program that takes a file name and a search string from the user. If the search string occurs in the file, then it counts the number of occurrences of the string. (Assume that search pattern can exist more than two times in a line).

b) How to call a constructor from another one ?

c) If we define the constructor in the private section then how can we create an object of that class ?

d) "In Java the variables are initialized before any method called even constructor." Explain with an example.

$$8 + 2 + 2 + 3$$

8. a) Write a program that stores information in the array and then sort the array.

b) What is the difference between the character stream and byte stream ?

c) How does Java garbage collector work ?

d) What is the object serialization in Java ? Illustrate with an example. $4 + 3 + 3 + 5$

9. a) What is the difference between method overloading and method overriding ? Illustrate with an example.

b) Write a Java class ComLineTest 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 "Simple Object Robust" the output will be No. of arguments-3

SOR

Write a main method to test the class.

c) How do we define try and catch block ? $4 + 8 + 3$

10. a) What is exception ? How can you handle the exception in Java ? Explain.

b) What is user-defined exception ? Explain with a suitable program.

c) What is the use of "finally" keyword ?

$$(1 + 5) + (2 + 5) + 2$$

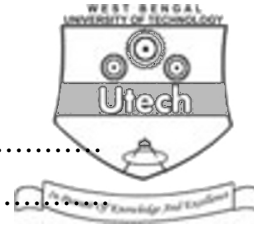11. Write short notes on any *three* of the following : 3 × 5

a) Abstraction

b) Exception handler

c) Encapsulation

d) Container class

e) Inheritance.

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Name : ....

Roll No. : ....

Invigilator's Signature : ....

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

2012

OBJECT ORIENTED PROGRAMMING WITH JAVA

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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives from the following :

                                                    $10 \times 1 = 10$

   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.
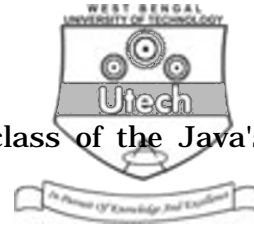
ix) Which one of the following is not a class of the Java's collections framework ?

 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 ( ). to String ( ) + "/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 × 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

MCA.

Write the accompanying main method and complete the program. 8
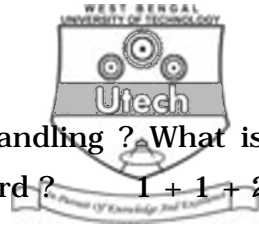
8. a) What is an event ? What is event handling ? What is the role of event listeners in this regard ?   1 + 1 + 2

    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 <u>applet</u> ? 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
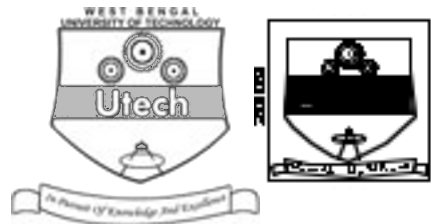
11. Write short notes on any *thee* from the following : 3 × 5 = 15

   a) Interface

   b) Exception handling

   c) Run-time polymorphism in Java.

   d) Inter-thread communication.

   e) Container Classes.

═══════

CS/MCA (SUPPLE)/SEM-5/MCAE-503B/09
OBJECT ORIENTED PROGRAMMING WITH JAVA (SEMESTER - 5)

1. ....
   Signature of Invigilator

2. ....   *Reg. No.*
   Signature of the Officer-in-Charge

   *Roll No. of the
   Candidate*

- -

CS/MCA (SUPPLE)/SEM-5/MCAE-503B/09
ENGINEERING & MANAGEMENT EXAMINATIONS, AUGUST – 2009
OBJECT ORIENTED PROGRAMMING WITH JAVA (SEMESTER - 5)

Time : 3 Hours]   [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.

2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.

    b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.

3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.

4. Read the instructions given inside carefully before answering.

5. You should not forget to write the corresponding question numbers while answering.

6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.

7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**

8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.

9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

FOR OFFICE USE / EVALUATION ONLY
Marks Obtained

				Group – A							Group – B		Group – C		Total Marks	Examiner's Signature
Question Number																
Marks Obtained																

....
Head-Examiner/Co-Ordinator/Scrutineer

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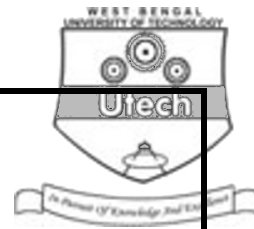
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CS/MCA (SUPPLE)/SEM-5/MCAE-503B/09

OBJECT ORIENTED PROGRAMMING WITH JAVA
SEMESTER - 5

Time : 3 Hours]　　　　　　　　　　　　　　　　　　[Full Marks : 70

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :　　　10 × 1 = 10

   i)　　int j;

   　　for (int i = 0; i < 14; i ++) {

   　　if (i < 10) {

   　　j = 2 + i;

   　　}

   　　System.out.println ("j:" + j + " i: " + i);

   　　}

   　　What is illegal in the above code ?

   　　a)　　Integer "j" is not initialized

   　　b)　　Nothing

   　　c)　　You cannot declare integer i inside the for-loop declaration

   　　d)　　The syntax of the "if" statement is incorrect

   　　e)　　You cannot print integer values without converting them to strings.

   ii)　　Which one of the following is a valid declaration of an applet ?

   　　a)　　Public class My Applet extends java.applet.Applet {

   　　b)　　Public Applet My Applet {

   　　c)　　Public class My Applet extends applet implements Runnable {

   　　d)　　Abstract class My Applet extends java.applet.Applet {

   　　e)　　Class My Applet implements Applet {

iii)   What will be the output of the following line ?

System.out.println ("The full marks is : " + 17 + 3);

a)   20   b)   17 + 3

c)   173   d)   371

e)   None of these.

iv)   Which one of the following statements is FALSE ?

a)   Java supports multi-threaded programming

b)   Threads in a single program can have different priorities

c)   Multiple threads can manipulate files and get user input at the same time

d)   Two threads can never react on the same object at the same time

e)   None of these.

v)   What is the value of Y ?

int Y = 8/3

a)   1   b)   2.6666667

c)   3   d)   2

e)   None of these.

vi)   Which one of the following is the equivalent of main ( ) in a thread ?

a)   start ( )   b)   go ( )

c)   run ( )   d)   begin ( )

e)   The class constructor.

vii)   What does it mean if a method is final synchronized ?

   a)   Methods which are synchronized cannot be final

   b)   This is the same as declaring the method private

   c)   Only one synchronized method can be invoked at a time for the entire class

   d)   The method cannot be overridden and is always threadsafe

   e)   All final variables referenced in the method can be modified by only one thread at a time.

viii)   An interface can never be private or protected.

   a)   True   b)   False

   c)   Sometimes true   d)   Sometimes false

   e)   None of these.

ix)   Class implementing this interface should

   a)   necessarily be an abstract class

   b)   have the method public abstract void some Method ( );

   c)   have the method public void some Method ( ) which has to throw an exception which is a subclass of java.lang.Exception.

   d)   have the method public void some Method ( ) which need not throw an Exception

   e)   none of these.

x)   A .... is a variable that may not be serialized.

   a)   Local variable   b)   Transient variable

   c)   Instance variable   d)   Class variable

   e)   None of these.

xi)   Inheritance can be prevented by the .... keyword.

    a)   static   b)   super

    c)   final   d)   this

    e)   none of these.

xii)   Interface should be declared as

    a)   Protected   b)   Public

    c)   Private   d)   Default

    e)   None of these.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2.   What is byte code ? How JVM helps to implement the platform independence nature ?   2 + 3

3.   What is 'this' keyword ? What is Constructor ? What are the benefits of using constructor rather than functon ?   1 + 1 + 3

4.   What is 'super' keyword ? Explain the implementation of super with a suitable example.   1 + 4

5.   Explain the difference between throw and throws. What is chained exception ? Give an example.   1 + 2 + 2

6.   a)   Can you set priorities in a thread ? Explain.

      b)   What do you mean by synchronization ?   3 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* questions.   3 × 15 = 45

7. What is method overriding ?

   "Method overriding can be prevented in Inheritance". Justify with example. What is wrapper class ?   2 + 10 + 3

8. Explain the Applet Life Cycle.

   "Applet class never declared as private". Why ?

   Develop an Applet class that receives *n* number of values as input from the user and displays the maximum, minimum and average number.   4 + 4 + 7

9. Define the term Runnable Interface.

   Why interface is implemented by all threads ?

   Write a program to implement the deadlock situation using thread.   3 + 2 + 10

10. What is package ?

    Explain the different types of package.

    Design a package that contains the class Worker and another package to contain the interface Wages. Now write a program to display the details of worker along with their wages by using the above mentioned package and interface.   15

11. Write short notes any *three* of the following :   3 × 5

    a) Inter-thread Communication

    b) AWT

    c) Abstract Class

    d) Garbage Collection

    e) Dynamic Method Dispatch.

———————

END

CS/MCA/SEM-5/MCA-E501A/2009-10

2009

DISTRIBUTED DATABASE MANAGEMENT SYSTEM

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 for the following :

$$10 \times 1 = 10$$

i) In how many ways m rows and n attributes can be represented ?

   a) $m * n$ b) $n! * m$

   c) $n * m!$ d) $m! * n!$.

ii) Granularity means

   a) size of memory   b) size of data

   c) locks   d) transaction.

iii) The data dictionary tells the DBMS

   a) what files are in the database

   b) what attributes are possessed by the data

   c) what these files contain

   d) all of these.

55034   [Turn over

iv) Clustering means

   a) keeping a common data in one place

   b) keeping different types of data in different places

   c) keeping different types of data in one place

   d) keeping in a common data in different places.

v) Spurious tuples may occur due to

   i) Bad normalization

   ii) Theta joins

   iii) Updating tables from join.

   a) (i) and (ii)

   b) (ii) and (iii)

   c) (i) and (iii)

   d) (i), (ii) and (iii).

vi) A, B, C is a set of attributes. The functional dependency is as follows :

$AB \rightarrow B, AC \rightarrow C, C \rightarrow B$

   a) is in 1NF   b) is in 2NF

   c) is in 3NF   d) is in BCNF.

vii) Which of the following models is used by distributed database system ?

   a) Mainframe computing model

   b) Disconnected, personal computing model

   c) Client/server computing model

   d) None of these.

viii) Which of the following refers to the operation of copying and maintaining database object in multiple databases belonging to a distributed system ?

   a) Backup   b) Recovery

   c) Replication   d) None of these.

ix) Which of the following is not a benefit of site autonomy ?

    a) A global catalog is not necessary to access local data

    b) Node can upgrades software independently

    c) Administrators can recover from isolated system failures independently

    d) No need for backup and recovery.

x) Which of the following is the recovery management technique for distributed system ?

    a) Deferred update   b) Immediate update

    c) Two-phase commit   d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. Explain different levels of Distributed transparency.

3. a) What is deadlock prevention ?

    b) What is the data fragmentation ? Describe the types of data fragmentation.   1 + 1 + 3

4. Write the difference between centralized and distributed DBMS with respect to DBA, redundancy, indexing, reliability and performance.

5. What are fragmentation, replication and location transparencies ?

6. Draw the reference architecture of distributed database.

GROUP – C

(Long Answer Type Questions)

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

7. a) What is transparency ? Discuss network transparency and replication transparency with example.   2 + 6

    b) What are the rules of fragmentation ?   2

    c) Define derived horizontal fragmentation with an exmaple.   5

8. a) EMP (ENO, ENAME, TITLE)

   ASG (ENO, PNO, RESP, DUR)

   Simplify the following query in SQL, based on the above relations using idempotency rules and give the query graph.

   Select ENO

   From ASG

   Where RESP = " Analyst"

   AND NOT (PNO = " P2" or DUR = 12)   7

   b) What are the different layers/steps of query processing ?   8

9. a) Describe the two-phase commit protocol with appropriate diagram. What are the demerits of this protocol ?   5 + 2

   b) Consider the following :

   Select Ename, Resp from Emp, Asg, Proj

   where Emp.Eno = Asg.Eno and Pname = " CAD/CAM" and Dur > = 36 and draw its query graph.   8

10. a) Describe the different failures possible in 2-phase commit protocol. What are the outcome of these failures ?   7

   b) What is the difference between reliability and availability ? What are the factors affecting the allocation ? What is nested transaction ?   3 + 3 + 2

11. Write short notes on any *three* of the following :   3 × 5

   a) Site failure

   b) Deadlock handling in DDBMS

   c) MDBS

   d) Check pointing in Distributed Database

   e) Peer-to-Peer Architecture.

   _____

   /

55034   4

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ENGINEERING & MANAGEMENT EXAMINATIONS, DECEMBER – 2008
OBJECT ORIENTED PROGRAMMING WITH JAVA
SEMESTER – 5

Time : 3 Hours]   [Full Marks : 70

GROUP – A
(Multiple Choice Type Questions)

1. Answer any *ten* of the following questions :   10 x 1 = 10

    i) Which of the following describes the difference between StringBuffer and Sring ?

        a) StringBuffer is used only to buffer data from an input or output stream

        b) StringBuffer allows text to be changed after instantiation

        c) StringBuffer holds zero length Strings

        d) StringBuffer supports Unicode.

    ii) ```
        class A {
            int i, j, k;
            public A (int ii) { i=ii; }
            public A( ) {
            k=1;
            }
        }
        ```

        Referring to the above, what code instantiates an object of class A ?

        a)  new A(this)                   b)  A a = new A(3);

        c)  A (3) a;                       d)  A a = new A (4,8);

    iii) Which of the following is not true about an interface ?

        a)  It can be partially implemented by a class

        b)  It can be implemented by an interface

        c)  It can be implemented by several classes

        d)  A particular class can implement several interfaces.

iv)    Which code declares class A to belong to the mypackage.financial package ?

     a)     package mypackage; package financial;

     b)     import mypackage.*;

     c)     package mypackage.financial.A;

     d)     package mypackage.financial;

v)    Which of the following is used as a part of method signature in Java ?

     a)    throw                 b)    throws

     c)    try                    d)    finally.

vi)    Which one of the following is a valid declaration of an applet ?

     a)     public class MyApplet extends java.applet.Applet {

     b)     public Applet MyApplet {

     c)     public class MyApplet extends applet implements Runnable {

     d)     abstract class MyApplet extends java.applet.Applet {

vii)    Consider the following class definition :

```
class Student
    {
        abstract double result ( )
    }
```

This code will not compile since a keyword is missing in the first line. What is the keyword ?

viii)   Give the output of the following code :

```
int m=100;
while(true)
{
    if(m<10)
    continue;
    m=m -10;
}
System.out.println("m is" +m);
```

ix)   Which of the classes in **java.io** package defines a method to delete a file ?

x)   Dynamic method dispatcher is useful for

   a)   resolving method overriding

   b)   resolving multilevel inheritance anomaly

   c)   resolving multiple inheritance anomaly

   d)   none of these.

xi)   Return type of class, constructor is

   a)   int   b)   void

   c)   class type itself   d)   none of these.

xii)   Which of the following are valid array declarations/definitions ?

```
int iArray 2[];

int iArray3[] = new int[10];

int iArray 4(10)=new int[10];
```

   a)   1   b)   2

   c)   3   d)   none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 x 5 = 15

2.   a)   Can a superclass object reference a subclass object ? Explain.   2

      b)   Illustrate the use of *this* and *super* with an example.   2

      c)   What is the difference between an abstract class and an interface ?   1

3.   a)   Explain the private, protected and private protected modifiers in brief.   3

      b)   What is the function of *finally* ?   2

4.   What are local applet and remote applet ? How do applets differ from application programs ?   3 + 2

5. Write applets to draw the following shape :

    a)   Rectangle with rounded corner

    b)   Square inside a circle.   2 + 3

6. Write a short on Life Cycle of an applet.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following questions.   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 CountAndPringArgs 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

        MCA

        Write a main method to test the class.   8

8. 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 *ThreeDObject* 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

9. a) Discuss about the Vector Class. "Vector objects cannot store primitive type data directly." — Is it true ?   2 + 1

    b) What are wrapper classes ? How can they be used to convert a data of primitive type to object type ?   2 + 2

    c) Write a program to implement a stack using the built-in Stack class in Java.   8

10. How do we define try and catch block ? Is it essential to catch all types of exceptions ? Explain. Explain how exception handling mechanism can be used for debugging a program.

    Define an exception called "NoMatchException" that thrown when a string is not equal to "University". Write a program that uses this exception.   3 + 2 + 3 + 7

11. What is package ? How do we add a class or an interface to a package ? Write a program to calculate the future value of an investment amount and years.

    The formula for the calculation is as follows :

    futurevalue = investment_amount $\times$ (1 + interest_rate)^{years}

    Use text fields for interest rate, investment amount and years. Display the future amount in a text field when clicking the calculate button.   2 + 3 + 10

———————

END

CS/MCA/SEM-5/MCAE-503B/2009-10
2009
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 for the following :   10 × 1 = 10

    i) if (check(storeNum) ! = null) { }

        Referring to the above, what datatype could be returned

        by method check ( ) ?

        a) boolean

        b) string

        c) char

        d) byte.

55435   [Turn over

ii)   int j;

        for(int i=0; i<14;i++) {

                if(i<10) {

                j = 2 + i;

                }

                system.out.println ("j;" +j+ "i:"+i);

        }

What is *wrong* with the above code ?

a)   Integer "j" is not initialized

b)   nothing

c)   you cannot declare integer i inside the for-loop declaration

d)   you cannot print integer values without converting them to strings.

iii)   Which access modifier is used to restrict the methods scope to itself and still allows other classes to subclass that class ?

a)   private   b)   final

c)   protected   d)   final.

iv)   What is the output of the following program ?

public class Trial {

        int x;

        public static void main(String args[ ]) {

                x = 8;

                system.out.print("The value of x is" + x);

        }

}

a)   The program prints The value of x is 8

b)   The program prints The value of x is 0

c)   The program will not compile

d)   None of these.

v) What do the 'pubic' and 'private' keywords relate to ?

    a) typing   b) garbage collection

    c) polymorphism   d) access restriction.

vi) Which of the following is *True* ?

    a) A class that is abstract must be containing all abstract methods

    b) The final keyword indicates that the body of a method is to be found elsewhere. The code is written in non-Java language, typically in C/C++

    c) A static variable indicates there is only one copy of that variable

    d) A method defined as private indicates that it is accessible to all other classes in the same package.

vii) An interface can define only

    a) abstract class

    b) final field

    c) abstract method

    d) abstract method and final field.

viii) Under which circumstances will a thread stop ?

    a) The run( ) method that the thread is executing ends

    b) The call to the start( ) method of the thread object returns

    c) The suspend( ) method is called on the thread object

    d) The wait( ) method is called on the thread/object.

ix) Dynamic method dispatcher is useful for

    a)   resolving method overriding

    b)   resolving multilevel inheritance

    c)   resolving multiple inheritance anomaly

    d)   none of these.

x)   Which of the following statements is true regarding constructors ?

    a)   All cases must define a constructor

    b)   A constructor can be declared private

    c)   A constructor can return a value

    d)   A constructor must initialize all the fields of a class.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following.   3 x 5 = 15

2. What is the difference between an Interface and an Abstract class ? What is the purpose of garbage collection in Java and when is it used ?   2 + 3

3. What is encapsulation ? Explain how encapsulation provides modularity and information hiding ?   2 + 3

4. Discuss that steps involved in developing and running a local applet.   5

55435   4

5. What are the main differences between Java and C++ ?   5

6. What do you mean by interface ? Write the differences between interface and an abstract class.   5

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following.   3 × 15 = 45

7. What is an object oriented paradigm ? Explain two differences between the object oriented paradigm of programming languages and the structured paradigm of programming languages. Suppose you write a Java program Main.java as :

```
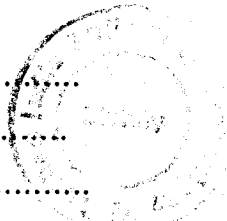public class Main {

    public static void main ( String s [ ] ) {

        system.out.println ("Best of luck");

    }

}
```

Is really this code platform (Operating System) independent ? Justify your answer. If not, explain how the statement justifies "JAVA is called platform independent". Explain all words in the statement :

"public static void main(String [ ] s)"   2 + 3 + 3 + 3 + 4

8. What is multithreading ? Explain the advantages of multithread programs. Write a program in Java to explain how different priorities can be assigned to different threads. What is an exception ? Explain, with an example, how exceptions are handled in Java.   2 + 3 + 5 + 2 + 3

9. Describe the different stages in the life-cycle of an applet. Distinguish between init ( ) and start ( ) methods. What is the difference between checked and unchecked exceptions ?

   Give an example where interface can be used to support multiple inheritances. Develop a Java program for the example.   4 + 3 + 3 + 5

10. a) Describe the complete life-cycle of a thread. What is synchronization ? When is it used ?   5 + 3 + 2

    b) Write a small program which will synchronize among two threads. What is thread priority ?   3 + 2

11. Write short notes on any *three* of the following : 3 × 5

   a)   Runtime polymorphism in Java

   b)   JVM

   c)   Inter-thread communication

   d)   Package

   e)   Final, finally and finalize keyword.

   ===============

CS/MCA/SEM-5/MCAE-503B/2010-11

2010-11

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 for the following :   10 × 1 = 10

   i)   int j;

        for (int i=0;i<14;i++) {

        if (i<10) {

        j = 2 + i;

        }

        System.out.println ("j:" + j + "i:" + i);

        }

        What is WRONG with the above code ?

        a)   Integer "j" is not initialized

        b)   Nothing

        c)   You cannot declare integer i inside the for-loop
             declaration

        d)   The syntax of the "if " statement is incorrect

        e)   You cannot print integer values without converting
             them to strings.

5226   [Turn over

ii) Which one of the following is a valid declaration of an applet ?

    a) Public class MyApplet extends java.applet.Applet {

    b) Public Applet MyApplet {

    c) Public class MyApplet extends applet implements Runnable {

    d) Abstract class MyApplet extends java.applet. Applet {

    e) Class MyApplet implements Applet {

iii) int values [] = { 1, 2, 3, 4, 5, 6, 7, 8 };

for (int i=0;i<X; ++i)

System.out.println (values [i]);

Referring to the above, what value for X will print all members of array "values" ?

    a) 1

    b) 7

    c) 8

    d) 9

    e) None, since there is a syntax error in the array declaration.

iv) public int m 1 (int x) {

int count = 1;

try {

count +=x;

count +=m2(count);

count ++;

}

catche (Exception e) { count −= x; }

return count;

}

Referring to the above, when m 1 (2) is invoked, m2 () throws an Arithmetic Exception and m 1 () returns which one of the following ?

a)   1

b)   2

c)   3

d)   4

e)   The system will exit.

v)   Which one of the following statements is FALSE ?

a)   Java supports multi-threaded programming

b)   Threads in a single program can have different priorities

c)   Multiple threads can manipulate files and get user input at the same time

d)   Two threads can never act on the same object at the same time

e)   Threads are created and started with different methods.

vi) 1 public static void main (String [] s) {

2 String n1, n2, n3;

3 n1 = "n1";

4 n2 = "n2";

5 n3 = "n3";

6 {

7 String n4 = "inner";

8 n2 = n1;

9 }

10 n3 = null;

11 }

How many instances of the String will be eligible for garbage collection after line 10 in the above code snippet is executed ?

a) 0

b) 1

c) 2

d) 3

e) The code will not compile.

vii) Which code declares class A to belong to the mypackage. financial package ?

a) package mypackage; package financial;

b) import mypackage.*;

c) package mypackage.finanical.A;

d) import mypackage.financial.*;

e) package mypackage. financial;

viii) JVM is

    a)   A java package

    b)   A java compiler

    c)   A system software

    d)   A java interface

    e)   None of these.

ix)   Size of Unicode is

    a)   2 bits

    b)   8 bits

    c)   16 bits

    d)   15 bits

    e)   none of these.

x)   Delegation model is associated with

    a)   Exception Handling

    b)   Garbage Collection

    c)   AWT

    d)   Event Handling

    e)   None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.　　3 x 5 = 15

2. What is the difference between the PATH and CLASSPATH ? What is Java Virtual Machine (JVM) ?　　2 + 3

3. How can a programmer define a class that cannot be inherited ? Give an example.　　5

4. What is the checked and unchecked exception ? Describe with proper examples.　　5

5. What is the difference between the final, finally, and finalize ?　　5

6. What is applet ? Describe the life cycle of the applet. What are demerits of the applet ?　　1 + 3 + 1

GROUP – C

(Long Answer Type Questions)

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

7. a) What is thread ? How to create a thread in Java ?

   b) What is the need of synchronized block ? Illustrate with an example.

   c) How to override the equal functions ?　　(2 + 2) + 7 + 4

8. a) "Programmer can call a constructor from another constructor." Explain with an example.

   b) Write a GUI program in Java that will have two buttons viz., RED and GREEN. If user clicks on RED button the background of the GUI will be painted in red or if user clicks on GREEN button the background of the GUI will be painted green.　　5 + 10

9. What is polymorphism ? What are the types of polymorphism present in Java ? Compare and contrast overloading and overriding methods with proper examples. 2 + 5 + 8

10. a) What is AWT ? Differentiate between component class and container class.

    b) What is an event ? What is event handling ? What is the role of event listeners in this regard ?

    c) Show by writing a complete code along with the output how multiple inheritance is implemented in Java. Explain static import. 2 + 2 + 1 + 1 + 2 + 6 + 1

11. Write short notes on any *three* of the following : 3 × 5

    a) Interface

    b) Package

    c) Container class

    d) Exception handler.

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