Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.TECH(IT-NEW)/SEM-4/IT-401/2012

2012
OBJECT ORIENTED PROGRAMMING AND UML

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 : $10 \times 1 = 10$

i) What happens when the following program is compiled and executed with the command ?

```
class Demo
{
    public static void main (String args[ ])
    {
        if(args.length>0)
        System.out.println(args.length);
    }
}
```

a) The program compiles and runs but does not print anything
b) The program compiles and runs and prints 0
c) The program compiles and runs and prints 1
d) The program compiles and runs and prints 2

ii) The method int func(int i,int j) { } can be overloaded using which of the following methods ?

a) int func(int i, int i, int k) {}

b) int func(float i, float j) {}

c) float func(int i, int j) {}

d) int func(int a, int b) {}

e) float func(int i, int j, float k) {}

iii) Which class is used to create a Thread ?

a) Thread b) Runnable

c) Thread Group d) Synchronization.

iv) What happens when the following program is compiled and executed with the command ?

```
public class A {
void A ()
{
    System.out.println ("Class A");
}
public static void main (string args[])
{
    New A();
}
}
```

a) Class A

b) Compilation fails

c) An exception is thrown at line 2

d) An exception is thrown at line 6

e) The code executes with no output.

v) Providing access to an object only through its member functions, while keeping the details private is called

a) Information hiding

b) Encapsulation

c) Inheritance.

vi) Which of the following is correct :

a) String temp[]=new String {“x”, “y”, “z”};

b) String temp[]={“x”, “y”, “z”};

c) String temp ={“x”, “y”, “z”};

d) String temp[]={“x”, “y”, “z”};

vii) Under what situations do you obtain a default constructor ?

a) When you define any class

b) When the class has no other constructors

c) When you define at least one constructor

d) non of these.

viii) Which of the following statements is *false* ?

a) Java supports multithreaded programming

b) Threads in a single program can have different properties

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.

ix) The concept of 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.

x) The parent class of all the exceptions in java is

a) Throwoable b) Throw

c) Exception d) Throws.

xi) Which tool is used to execute an applet ?

a) java b) javac

c) appletviewer d) appletrunner.

GROUP – B

(Short Answer Type Questions)

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

2. Define a class *Motor Vehicle* as described below :

Data members :

(i) modelName

(ii) modelNumber

(iii) modelPrice

Methods :

display() method to display the name, price and model number.

Define another class named *Car* that inherits the class *Motor Vehicle* and has the following :

Data members :

(i) discountRate

Methods :

(i) Display() method to display the Car name, Car model number, Car price and the discount.

(ii) Discount () method to compute the discount.

Write suitable code for creating the classes *Motor Vehicle* and *Car* with suitable constructors and test it. 5

3. Write a small program to synchronize among two threads. What is thread priority ? 3 + 2

4. How do we define try and catch block ? Is it essential to catch all types of exception ? Explain. 3 + 2

5. How can you call a constructor from another constructor ? What is Late binding ? 4 + 1

6. Can an abstract method have a constructor ? Explain. What is final keyword ? 2 + 3

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What is a friend function ? Give an example.

   b) Describe briefly Class diagram and collaboration diagram.

   c) What is the difference between copy constructor and assignment constructor ? 5 + 5 + 5

8. a) What is 'super' keyword in object oriented programming ?

   b) Describe briefly operator overloading. How is it different from overriding ?

   c) Describe briefly inheritance. 3 + (4 + 3) + 5

9. a) What is the difference between multi-valued inheritance and hybrid inheritance ?

   b) Explain the significance of using template.

   c) Write a C++ program to implement the different types of constructor.

   d) How will you create a object using constructor ?

   3 + 4 + 5 + 3

10. a) Write a short note on "This" keyword.

    b) What is the difference between namespace and unnamed namespace ?

    c) Describe briefly state chart activity.

    d) What is the difference between implementation diagram and component diagram ? 4 + 3 + 4 + 4

11. a) Write down the life cycle of applet.

    b) What is the difference between abstract class and interface ?

    c) What is meta class ?

    d) Write C++ program to implement the operator overriding. 4 + 4 + 3 + 4