



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 × 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) Throwable
 - 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 × 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