Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/B.Tech (CT)(N)/SEM-5/CT-504C/2012-13

2012

OBJECT ORIENTED PROGRAMMING

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)   Which statement is true from the options given below ?

      a)   Any data member declared as private in a class is directly available in its subclass

      b)   Any data member declared as protected in a class is directly available in its subclass that belongs to a different package

      c)   Any data member declared as public in a class is available for accessing from anywhere

      d)   None of these.

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ii) What is the purpose of a constructor ?

    a) It deletes an object

    b) It initializes the data members for the specific object

    c) It collects the useless objects as garbage

    d) It makes a class private.

iii) Which statement is true from the options given below ?

    a) Java does not support multiple inheritances directly

    b) Java supports multiple inheritances directly

    c) Java is not an Object Oriented Programming Language
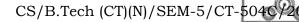
    d) None of these.

iv) Static variable of a class is

    a) object dependent for that class

    b) object independent for that class

    c) both (a) and (b)

    d) none of these.

v) Which statement is true from the options given below ?

    a) 'Method overloading' and 'Method overriding' are not the same thing

    b) 'Method overloading' and 'Method overriding' are the same thing

    c) Both (a) and (b)

    d) None of these.

vi) Java interface can contain

    a) constructor

    b) purely private abstract methods

    c) purely public abstract methods

    d) purely private defined methods.

vii) The output of an applet is displayed using the

    a) `public void init ( )` method

    b) `public void start ( )` method

    c) `public void stop ( )` method

    d) `public void paint (Graphics g )` method.

viii) Which statement is true from the options given below ?

    a)   an abstract class can be final

    b)   an abstract class can be having defined public constructor

    c)   an abstract class can be having abstract static constructor

    d)   none of these.

ix) Which statement is true from the options given below ?

    a)   The finally block, if it is declared will be executed under any circumstances

    b)   The finally block, if it is declared will not be executed under any circumstances

    c)   Both (a) and (b)

    d)   None of these.

x) Which of the following methods ensures that the child thread will be terminated first before the parent thread terminates ?

    a)   `public void start ( )`

    b)   `public void run ( )`

    c)   `final void join ( ) throws InterruptedException`

    d)   `final boolean isAlive( ).`

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following   3 × 5 = 15

2. What are the main features of OOP languages ? What is the role of `main ( )` method in java ?   3 + 2

3. What do you mean by method overloading and method overriding in java ? Give one example of a structured programming language.   4 + 1

4. What do you mean by the class and object concepts ? What is constructor ? Mention whether the keyword 'String' represents a class or an object.   2 + 2 + 1

5. Discuss some of the properties for the nested/inner classes in java with example.

6. What are the major and minor elements regarding the Object Oriented Programming concepts ?   3 + 2

7. Explain the concept of dynamic method dispatch in java. What do you mean by 'this' keyword in java ?   3 + 2

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

8. a) Discuss some of the properties for static variables and methods in java.

    b) Discuss some of the differences between abstract class and interface.

    c) Discuss the different uses of the 'super' keyword in java.

          5 + 5 + 5

9. a) Discuss how interfaces can be implemented.

   b) Discuss how interfaces can be extended.

   c) What do you mean by packages ? What are its advantages ? 5 + 5 + (3 + 2)

10. a) What do you mean by the 'try' and 'catch' clauses in java ? Discuss with example.

   b) What are the differences between 'throw' and 'throws' clauses in java regarding the exception handling mechanism ? What do you mean by the 'finally' block ?

   c) Discuss how user defined exceptions are created.

   5 + (3 + 2) + 5

11. a) Discuss how child threads are created in java.

   b) Discuss thread life cycle with a diagram.

   c) Discuss the implications of the following methods in the String class of java :

   int length ( ), boolean equals (String str), char charAt (int index). 5 + 5 + (2 + 2 + 1)

12. a) What are the main differences between the applet and application programming in java ? What do you mean by the term 'byte code' in java ?

   b) Discuss the java applet life cycle methods in detail.

   c) Explain the following terms :

   i) Association

   ii) Aggregation

   iii) JVM. (3 + 2) + 5 + (2 + 2 + 1)

13. a) What are the differences between the 'Conventional Structured' programming language and the 'Object Oriented' programming language ? What do you mean by the 'garbage collection' in java ?

b) Discuss the requirement of the concerned keywords in the following java programme statement :

```
"public static void main ( String args [ ] )"
```

c) Discuss the use of the 'final' keyword in java. What is the difference between Error and Exception in java ?

(3 + 2) + 5 + (3 + 2)

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