# OBJECT ORIENTED PROGRAMMING
## (INFO 2204)

**Time Allotted : 3 hrs**                                                    **Full Marks : 70**

*Figures out of the right margin indicate full marks.*

*Candidates are required to answer Group A and
<u>any 5 (five)</u> from Group B to E, taking <u>at least one</u> from each group.*

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

## Group – A
### (Multiple Choice Type Questions)

1. Choose the correct alternative for the following:                    **10 × 1 = 10**

   (i)    Which of the following is not a class associated with Java Exception Handling?
          (a) Throwable          (b) Error          (c) Exception          (d) Throw**.**

   (ii)   'super' keyword can be written
          (a) As first statement of the method
          (b) Can be written anywhere in the program
          (c) Can be written anywhere in the method
          (d) None of the above.

   (iii)  Inside a method, 'this' keyword refers to
          (a) the caller object which is presently calling the method
          (b) the variables sent to the method
          (c) the class that contains the method
          (d) the method itself.

   (iv)   Child thread can be created by
          (a) by extending Thread class          (b) by implementing Runnable interface
          (c) both (a) and  (b)                  (d) none of the above.

   (v)    Import statement can be written as
          (a) First statement in the program
          (b) Can be written anywhere in the program
          (c) Both (a) and (b)
          (d) None of the above.

   (vi)   In Java, arrays are implemented as
          (a) object references          (b) primitive data types
          (c) Strings                    (d) objects.

(vii)    Which of the following is true about StringBuffer?
(a) StringBuffer is mutable                    (b) StringBuffer is immutable
(c) Both are true                              (d) None of the above.

(viii)   Java Applet can run on
(a) Web Browser                                (b) AppletViewer
(c) Both are true                              (d) None of the above.

(ix)     InputStreamReader class is used to convert
(a) bit to bytes                               (b) integer to character
(c) integer data to string data                (d) bytes to characters

(x)      All classes created in Java have to implement _____ method which executes a thread.
(a) suspend method                             (b) notify method
(c) run method                                 (d) isAlive method

# Group - B

2.  (a)   How procedural programming language differs from object oriented programming language. Explain with example.
    (b)   What is meant by aggregation? Explain with a relevant example and implement that hierarchy at Java Platform.

**6 + 6 = 12**

3.  (a)   Discuss about the different properties of Object Oriented Programming.
    (b)   What is Meta class, Role-Name of the class? What is link association?

**6 + (3 + 3) = 12**

# Group - C

4.  (a)   Explain Byte code? How it helps to make Java Architectural Neutral language?
    (b)   Differentiate between method overloading and method overriding. How method overriding helps to implement Run time polymorphism-Explain with example.

**(2 + 2) + (3 + 5) = 12**

5.  (a)   Define abstract method with example.
    (b)   "Abstract method cannot be declared as final"- Justify the statement.
    (c)   With the help of Java program defend why multiple inheritances is not possible in JAVA.

**3 + 4 + 5 = 12**

# Group - D

6.  (a)   Write a program called "Factorial.java" that computes factorials and catches the result in an array of type long for reuse. The long type of variables has its own

range. For example 20! Is as high as the range of long type. So checks the argument passed and throw an exception if it is too big or too small.

If x is less than 0, throw an "IllegalArgumentException" with a message "value of x must be positive". If x is above the length of the array, throw an "IllegalArgumentException" with a message "result will overflow." Here x is the value for which we want to find the factorial.

(b)  Differentiate between throw and throws with an example. What do you mean by wrapper class? Give suitable example to explain your answer.

**6 + (3 + 3) = 12**

7.  (a)  Implement a java program to
     (i)   Print the name, priority, and Thread group of the thread.
     (ii)  Change the name of the current thread to "MyThread".
     (iii) Display the details of current thread.
    (b)  Explain the use of synchronized block.
    (c)  Differentiate between notify and notifyAll.

**6 + 3 + 3 = 12**

# Group - E

8.  (a)  Design a Java program which will display the content of one file to another file. Take filename as user input.
    (b)  What is wrapper class? Explain with example.
    (c)  Differentiate between BufferedReader and scanner class.

**6 + 3 + 3 = 12**

9.  (a)  Differentiate between applet and swing.
    (b)  Design a GUI with the help of applet where one text box will take only number input and check whether number is prime or not.
    (c)  Compare paint() and repaint() method in applet.

**3 + 6 + 3 = 12**