OBJECT ORIENTED PROGRAMMING
(INFO 2202)

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

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one 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) Encapsulation and abstraction differ as _____.
(a) Hiding and hiding respectively (b) Binding and Hiding respectively
(c) Hiding and Binding respectively (d) Can be used any way

(ii) Which feature can be implemented using encapsulation?
(a) Polymorphism (b) Overloading
(c) Inheritance (d) Abstraction.

(iii) The feature by which one object can interact with another object is _____.
(a) Message reading (b) Message Passing
(c) Data transfer (d) Data Binding

(iv) In multilevel inheritance, which is the most significant feature of OOP used?
(a) Code efficiency (b) Code readability
(c) Flexibility (d) Code reusability.

(v) When is the object created with a new keyword?
(a) At run time (b) At compile time
(c) Depends on the code (d) None of (a), (b) & (c).

(vi) In which access should a constructor be defined, so that object of the class can be created in any function?
(a) Any access specifier will work (b) Private
(c) Public (d) Protected.

(vii) Total instances of an abstract class that can be created?
(a) 0 (b) 1
(c) 4 (d) 8.

(viii) Which type of members can't be accessed in derived classes of a base class?
(a) All can be accessed (b) Protected
(c) Private (d) Public.

(ix) Which of the following definition is incorrect for polymorphism?
(a) Polymorphism helps in redefining the same functionality
(b) Polymorphism concept is the feature of object-oriented programming (OOP)
(c) It always increases the overhead of function definition.
(d) Ease in the readability of the program.

(x) What happens if non static members are used in static member function?
(a) Executes fine
(b) Compile time error
(c) Executes if that member function is not used
(d) Runtime error.

Group - B

2. (a) Draw the relationship between aggregation and association with example. *[(CO2)(Analyze/IOCQ)]*
(b) Describe relative advantages and disadvantages of OOP over procedural programming language? *[(CO2)(Understand/LOCQ)]*
(c) Describe the concept of Multiple Inheritance with example (Java code not required). *[(CO2)(Understand/LOCQ)]*
5 + 4 + 3 = 12

3. (a) "JAVA's platform independence is achieved through BYTE Code" — Justify the statement. *[(CO1)(Evaluate/HOCQ)]*
(b) Compare between constructor and method with an example. *[(CO1)(Analyze/IOCQ)]*
(c) "Finalize method triggers just before Garbage collection"- Justify the statement. *[(CO1)(Evaluate/HOCQ)]*
3 + 5 + 4 = 12

Group - C

4. (a) “Dynamic Method Dispatch is the mechanism by which we can implement Run Time Polymorphism” — Justify the statement with proper Java code. *[(CO3)(Justify/HOCQ)]*
(b) Differentiate between Abstract class and Interface with proper example. *[(CO3)(Analyze/IOCQ)]*
(c) Explain the use of FINAL keyword. *[(CO3)(Understand/LOCQ)]*
5 + 4 + 3 = 12

5. (a) Differentiate between method overloading and method overriding with example. *[(CO3)(Analyze/IOCQ)]*
(b) Write a program to implement object passing as parameter. *[(CO2)(Apply/IOCQ)]*
(c) With the help of JAVA program explain the use of static variable, static method, and static block. *[(CO2)(Understand/LOCQ)]*
4 + 4 + 4 = 12

Group - D

6. (a) Differentiate between throw and throws with an example. *[(CO4)(Analyze/IOCQ)]*
   (b) Define error. How it differs from exception-explain. *[(CO4)(Remember/Understand/LOCQ)]*
   (c) A 'try can be associated with multiple catch'- Justify the statement. *[(CO4)(Justify/HOCQ)]*

6 + (1 + 2) + 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. *[(CO4)(Apply/IOCQ)]*
   (b) If more than one thread share a common resource then how we can manage the execution of these threads- Explain with proper example. [*(CO4)(Understand/LOCQ)]*
   (c) Differentiate between notify() and notify All(). *[(CO4)(Analyze/IOCQ)]*

6 + 4 + 2 = 12

Group - E

8. (a) Design a Java program which will copy the content of one file to another file. Take filename as user input. *[(CO5)(Create/HOCQ)]*
   (b) What is wrapper class? Explain with example. *[(CO5)(Understand/LOCQ)]*
   (c) Discuss the use of BufferedReader. *[(CO5)(Understand/LOCQ)]*

6 + 3 + 3 = 12

9. (a) Differentiate between Applet and Swing. *[(CO6)(Analyze/IOCQ)]*
   (b) Compare paint() and repaint() method in applet. *[(CO6)(Analyze/IOCQ)]*
   (c) Design a Swing program which will take input in a text box and display the factorial result in message box. *[(CO6)(Create/HOCQ)]*

3 + 4 + 5 = 12

Cognition Level	*LOCQ*	*IOCQ*	*HOCQ*
Percentage distribution	*28.13*	*44.79*	*27.08*

Course Outcome (CO):

After the completion of the course students will be able to

1. Understand the basic concepts and fundamentals of platform independent object oriented programming language and its specialties.
2. Use the syntax and semantics of Java programming language and basic concepts of OOP to write programs relating to the real world in an Object Oriented paradigm.
3. Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
4. Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.

5. Apply the knowledge of Input Output System handling to write user interactive programs.
6. Design event driven GUI and applets which mimic the real world scenarios.

**LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question; HOCQ: Higher Order Cognitive Question.*