

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

M.Sc.(Computer Science) (Sem.-1)

OOPS USING C++ & JAVA

Subject Code : MSC-102

M.Code : 70888

Date of Examination : 20-05-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTIONS-A, B, C & D** contains **TWO** questions each carrying **TEN** marks each and students have to attempt any **ONE** question from each **SECTION**.
2. **SECTION-E** is **COMPULSORY** consisting of **TEN** questions carrying **TWENTY** marks in all.

SECTION-A

1. What is object-oriented programming (OOP)? Describe the concept of objects and classes, data abstraction and encapsulation, inheritance, polymorphism, dynamic binding, and message communication.
2. What do you mean by the procedural oriented and object-oriented approaches to programming? Explain the advantages of using an object-oriented approach in software development.

SECTION-B

3. Explain the concept of Object-Oriented Analysis (OOA) and its significance in software development. Discuss the steps involved in OOA, including problem statement, identification of objects and example of analysis process using objects.
4. Explain the concepts of generalization and inheritance in OOM. Discuss how generalization allows for creating abstract classes and specialized classes through inheritance? Explain the benefits and limitations of using inheritance in object-oriented design.

SECTION-C

5. Discuss the concept of constructors in C++ and their role in object initialization. Explain constructor overloading, default, parameterized and copy constructor with suitable code snippet.

6. What is operator overloading, function overloading in C++ with examples. Write the suitable example code explaining both the concepts.

SECTION-D

7. Discuss the concept of command line arguments in Java, including how to pass arguments to a Java program and how to retrieve and process them? Provide example of Java programs that utilize command line arguments to illustrate their practical usage.
8. Explain the structure of a Java program that consists of two classes, including the documentation section, package statement, import statements, interface statements, class definitions, and the main method class. Discuss the purpose and usage of each component in the Java program structure.

SECTION-E

9. Answer Briefly :
- a. Define the concept of inline functions in C++ and discuss their advantages in terms of program efficiency.
 - b. Explain the concept of virtual functions in C++ and their role in achieving runtime polymorphism.
 - c. Discuss the difference between structures and classes in C++ in terms of their usage and features.
 - d. How does C++ facilitate code reuse?
 - e. Name two object-oriented programming languages.
 - f. Explain in brief the concept of object modeling in Object-Oriented Methodology (OOM) and its importance in developing object-oriented software systems.
 - g. Define abstract classes in Object-Oriented Methodology (OOM).
 - h. State any two Java features Top of Form.
 - i. What is the purpose of the "import" statement in a Java program?
 - j. What is the role of the Java Virtual Machine (JVM) in running Java programs?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.