Roll No. ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚   Total No. of Pages: 02

Total No. of Questions: 09

Master of Science (Computer Science) (Sem. – 1)
OOPS USING C++ & JAVA
Subject Code: MSC-102
M Code: 70888
Date of Examination : 21-01-23

Time: 3 Hrs.   **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATES:
1. **SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks 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 are the benefits of object-oriented programming over procedure-oriented programming language? Give a suitable real-world example to demonstrate the difference.

2. What is polymorphism? How do you think it is suitable for object-oriented programming? Write a program to implement overloading and overridng in C++.

SECTION-B

3. What is object modelling? How do object model, dynamic model and functional model differ from each other?

4. What are the phases in object-oriented software development and what are its benefit?

SECTION-C

5. What do you understand by classes and objects in object-oriented programming? Write a program in C++ to demonstrate various kind of inheritance in C++.

6. What is the role of constructor and destructor in object-oriented programming? Write a program to demonstrate the concept of copy constructor in C++.

SECTION-D

7. Java is platform independent. Justify the statement. What are differences in C++ and Java? Write a program of your choice in both C++ and Java to demonstrate at least 5 differences in Java and C++.

8. What is string in Java? What do you understand by immutable class in Java? Write a Java program to find the frequency of each character in a string and return the character with highest frequency.

SECTION-E

9. Answer the questions in brief:

   a) Differentiate between early binding and late binding in C++.

   b) What is data hiding in object-oriented programming?

   c) What do you understand by derived data type in C++?

   d) What are structures in C++? Explain with example in C++.

   e) What is a virtual function C++? Explain with example.

   f) What is inheritance? Explain with example.

   g) What is the difference between structure and object in C++?

   h) Differentiate between interface and abstract class in Java.

   i) What is JDK?

   j) What is multithreading in Java?