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[Roll No. ....]

**MCS-508**

**MCA/MSCIT II/IV Semester  
Examination Dec. 2023**

**PROGRAMMING IN JAVA**

**Time : 2 Hours]**

**[Max. Marks : 70**

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*Note :- This paper is of Seventy (70) marks divided into two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given there in. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.*

**Section-A**

**(Long Answer Type Questions) 2×19=38**

*Note :- Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.*

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P.T.O.

1. Define OOPs. Explain in detail about the object oriented approach and procedure oriented approach.
2. Explain in detail about the control statements used in Java.
3. What is Inheritance ? Explain multilevel inheritance with the help of a suitable program.
4. Define applet. How applet is different from application ? Explain how HTML applet tag is used in Java.
5. What are different types of exceptions in java ? Explain the exception handling mechanism in particular to handling multiple exceptions with the help of a suitable program.

### **Section–B**

**(Short Answer Type Questions)**      4×8=32

**Note** :- Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Explain the concept of method overriding with the help of a program.
2. Define class. Explain about the access modifiers used in Java.

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3. Explain in detail about the primitive data types used in Java.
4. Define Array. Write a program to sort an array in ascending order.
5. Why do you need multithreading ? How can multiple threads run simultaneously in a single processor system ?
6. Define different string operations used in Java.
7. What are the basic user interface components in Java AWT ?
8. Write short notes on the following :
  - (a) Abstraction
  - (b) Garbage collection
  - (c) Multithreading
  - (d) URL

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