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

Total No. of Questions : 09

MCA (2012 & Onward)  (Sem.–3)
# JAVA PROGRAMMING
## Subject Code : MCA-304
## Paper ID : [B1160]

**Time : 3 Hrs.**  **Max. Marks : 100**

**INSTRUCTION TO CANDIDATES :**
1. **SECTIONS-A, B, C & D contains TWO questions each carrying TWENTY marks each and students has to attempt any ONE question from each SECTION.**
2. **SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.**
3. Use of non-programmable **scientific calculator** is allowed.

## SECTION A

1. Explain the following :

   (i) Utility of super keyword        (ii) Using abstract classes

   (iii) Dynamic method dispatch      (iv) Using final keyword.        10

2. (a) State the difference between Java and C++        4

   (b) What are the various iterative statements used in Java? Explain with example.      6

## SECTION B

3. What is multithreaded programming? What are its benefits? What are the various ways of creating a Thread in java? Explain each one of them step by step with suitable code.

4. What is exception handling? How is it done in java? What is the usage of throw and throws keyword in exception handling? Explain with suitable example.

## SECTION C

5. What are applets? What are the advantages of using applets for web programming? Explain in detail the lifecycle of applet.

6. What do you understand by delegation event model in Java? Describe with suitable example.

## SECTION D

7.  Write a small servlet application which generates an HTML response on successful submission of user login form.

8.  How do you create a client socket? What are the steps involved to read from/write to a client socket?

## SECTION E

9.  **Write Briefly :**

    (a) Name the various primitive data types in Java.

    (b) What is usage of finalize method?

    (c) Why do we use stringbuffer class?

    (d) What is use of finally block in exception handling?

    (e) What is difference between a panel and frame?

    (f) Name the implicit objects used in JSP.

    (g) What is use of classpath variable?

    (h) What is role of Driver Manager in JDBC?

    (i) What is utility of scanner class?

    (j) How JSP is different from servlet?