

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2024****Subject Code:2150704****Date:21-05-2024****Subject Name:Object Oriented Programming using JAVA****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

|     |                                                                                                       | MARKS |
|-----|-------------------------------------------------------------------------------------------------------|-------|
| Q.1 | (a) Define: JVM, bytecode and thread                                                                  | 03    |
|     | (b) Explain the four principles of object oriented programming.                                       | 04    |
|     | (c) Explain the following with examples:<br>final variable, final method final class and finally.     | 07    |
| Q.2 | (a) Explain how to create object and access class member and methods in java.                         | 03    |
|     | (b) Explain public static void main (Strings args[]) statement in java.                               | 04    |
|     | (c) Explain if statement, while, do while and for loop statement with examples in java.               | 07    |
|     | <b>OR</b>                                                                                             |       |
|     | (c) Write a program in Java for multiplication of two 3x3 given matrices.                             | 07    |
| Q.3 | (a) List types of Inheritance. Explain inheritance with example.                                      | 03    |
|     | (b) What is Exception? Demonstrate how you can handle different types of exception separately.        | 04    |
|     | (c) Explain string arrays and string methods : compareTo(), Valueof(), trim(), length(), concat().    | 07    |
|     | <b>OR</b>                                                                                             |       |
| Q.3 | (a) What are the characteristics of constructors?                                                     | 03    |
|     | (b) Explain the difference between overloading and overriding.                                        | 04    |
|     | (c) Explain all the types of visibility modifiers.                                                    | 07    |
| Q.4 | (a) Differentiate between static variable and final variable.                                         | 03    |
|     | (b) What is an interface? Explain the importance of it in Java.                                       | 04    |
|     | (c) Write a program in Java to show method overloading of constructor inheritance.                    | 07    |
|     | <b>OR</b>                                                                                             |       |
| Q.4 | (a) Describe the difference between abstract method and final method.                                 | 03    |
|     | (b) What is package? What are the requirements of it? What we can achieve using package?              | 04    |
|     | (c) Write a program in Java to show method overriding super keyword.                                  | 07    |
| Q.5 | (a) When a method or a class is declared abstract?                                                    | 03    |
|     | (b) What is the importance of dynamic method dispatch in Java?                                        | 04    |
|     | (c) What is multithreading? What are the ways in which you can create a thread? Explain with Example. | 07    |

**OR**

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|------------|------------------------------------------------------------------------------------------|-----------|
| <b>Q.5</b> | <b>(a)</b> Describe the difference between character stream class and byte stream class. | <b>03</b> |
|            | <b>(b)</b> Explain how to handle primitive data types in I/O management of file?         | <b>04</b> |
|            | <b>(c)</b> Write a program in Java for writing bytes to a file.                          | <b>07</b> |

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