

**GUJARAT TECHNOLOGICAL UNIVERSITY****MCA - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 630002****Date: 31-12-2014****Subject Name: Fundamentals of Java Programming****Time: 10:30 am - 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) State which of the following are true or false. Justify your answer. **07**
- i) The size of char data-type is 1 byte in java.
  - ii) A single Java file may contain any number of class definitions.
  - iii) Java source code can be written in files with any extension.
  - iv) A Boolean value can be cast to an int.
  - v) Every class has at least one constructor available.
  - vi) Static variable cannot be used in non-static methods.
  - vii) Overloading of a constructor is not allowed in Java.
- (b) i) What is the difference between method overloading and overriding in Java? **04**
- ii) What is the difference between final method and ordinary method of a class? **03**
- Q.2** (a) i) Explain the uses of keyword “super” and “extends” with code. **03**
- ii) Explain the purpose of equals() method in the “Object” class with an example. **04**
- (b) i) Explain the uses of keywords “protected”, “private”. **04**
- ii) What is meant by interface? Explain with java code. **03**
- OR**
- (b) i) How method overriding will be achieved in Java application? **03**
- Explain with code.
- ii) What is the difference between “Comparable” and “Comparator” interfaces? **04**
- Q.3** (a) i) Explain the purpose of “Exception” class. **03**
- ii) Explain the uses of the keywords “throw” and “finally”. **02**
- iii) Explain anonymous class. **02**
- (b) i) Explain Local class. **05**
- ii) Why constructor of “enum” type is declared as private. **02**
- OR**
- Q.3** (a) i) Explain the diamond problem associated with multiple inheritance in java. **04**
- ii) Explain the use of finalize() method. **03**
- (b) Explain the two different ways of creating a new thread of execution using “Thread” class and “Runnable” interface. Justify your answer with java code. **07**
- Q.4** (a) i) Distinguish between “call by reference” and “call by value” with java code. **05**
- ii) Explain static method in a class. **02**
- (b) i) Explain the steps which are required to create a new thread for execution. **05**
- ii) Explain the method currentThread(), sleep() for Thread. **02**
- OR**
- Q.4** (a) i) What is Frame class? Explain with java code. **05**
- ii) Explain BorderLayout and Flowlayout manager in AWT. **02**
- Q.4** (b) i) Explain the event delegation model used for handling events in JAVA. **05**
- ii) Explain “File” class and “Reader” class in java.io package. **02**

- Q.5** (a) i) List the life-cycle methods of an Applet. **05**  
ii) What is reference data-type in java? **02**  
(b) i) Write an application to create two threads. One thread calculates factorial of a number and another thread calculates sum of the digits of a number. **05**  
ii) What is “instanceof” keyword? **02**

**OR**

- Q.5** (a) i) Write an application to create a Frame. Frame contains one button and two text box. When the button is clicked, input given in one text box will be reversed and displayed into another text box. **05**  
ii) Why main() method in any Java class is declared as static? **02**  
(b) i) What is the difference between Applet and Frame in Java application? **05**  
ii) What are the terms “MouseListener” and “MouseAdapter”? **02**

\*\*\*\*\*