

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA. Sem-III Regular Examination January 2011****Subject code: 630002****Subject Name: Fundamentals of Java Programming****Date: 04 /01 /2011****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 and false. Justify your answer. 07**
- I Each reference variable always refers to a different instance. Two reference variables can not refer to the same instance.
 - II "instanceof" is a keyword in java.
 - III static variable can not be modified.
 - IV The initializer block in a class is executed after the constructor code is executed on invocation of constructor.
 - V In java, method binding is done at runtime.
 - VI Anonymous class may be abstract.
 - VII The Serializable interface has a method called writeObject().
- (b) Fill in the blanks in the following: 07**
- I The access specifier for constructors of enum types is always _____.
 - II _____ method is called by the garbage collector just before deallocation of an instance.
 - III _____ class is super-class of all the classes.
 - IV The method used for unwrapping from an instance of integer is _____.
 - V java.io.FileWriter is a direct sub-class of _____.
 - VI The package for all AWT-related events is _____.
 - VII The static member classes are also known as _____.
- Q.2 (a) I Explain the uses of keyword "this" and "super" with code. 03**
- II Explain each of the following terms: Multiple Inheritance and Interface. 04**
- (b) I What is the need of declaring abstract class? Explain with code. 04**
- II What is the difference between "==" operator and equals() method of Object class? 03**
- OR**
- (b) I Explain the term "variable shadowing". 03**
- II Explain the uses of the keywords "package" and "import". 04**
- Q.3 (a) I Explain the difference between the variable of primitive data types and reference data type with java code. 03**
- II Explain the difference between Comparable and the Comparator interfaces. Explain with code. 04**
- (b) I Explain different access specifier used in java. 02**
- II Explain "Top level nested "class and "enum" type with java code. 05**
- OR**
- Q.3 (a) I Write a short note on the role of Pattern and Matcher class for handling regular expression with example. 05**
- II Define anonymous class. 02**
- (b) I Explain the uses of keywords "throw", "throws", "try", "catch" and "finally" 05**
- II Explain the difference between daemon and non-daemon thread. 02**

- Q.4 (a)** Create a "student" class. Student has members stdid, name, grade. Create HashMap for student objects. Write an application which adds student objects in HashMap and displays all students objects from HashMap with the help of Collection interface. Write appropriate constructors and methods in student class. **07**
- (b)** I When we are using "FilenameFilter" interface in application? Explain with code. **04**
- II If we are declaring variable, method, class as final. What will happen? **03**

OR

- Q.4 (a)** Create a class called product, each product has a name, code and price. Create a vector of product objects. We can add, modify, delete product from vector. We can display the size and capacity of vector. After above operations on vector, vector elements should be displayed. **07**
- (b)** I What is the role of 'ActionListener' for handling event. Explain with code. **04**
- II What are annotations and how are they useful? **03**
- Q.5 (a)** I What is the need of thread synchronization? Explain with proper real life example. **04**
- II Consider code fragment below. **03**

```
class Outer{
    private int x;
    class Inner{
        private int x=10;
        private int y;
        public void meth1(Outer out){

            System.out.println("x "+ out.x);
            System.out.println("x "+Outer.x);
            System.out.println("x "+Outer.this.x);
        }
    }
    public void meth2(Inner in){
        in.y=5;
        System.out.println("y "+y);
    }
}
```

In above code, list down the instructions which give compilation error. Write, why these instructions give compilation error.

- (b)** I What is the functionality of SimpleDateFormat class. **02**
- II Explain the life cycle of an Applet with the help of java program. **05**

OR

- Q.5 (a)** There is a class called employee. Employee has members empid, name, salary. Write an application for writing the employee records in a .txt file. Then the application will read the records from the file and display the records. For implementing this problem, use ObjectOutputStream and ObjectInputStream class. **07**
- (b)** I Explain the functionality of ItemEvent and TextEvent with example. **04**
- II What is the difference between Frame and Dialog? **03**
