

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA INTEGRATED– SEMESTER -III EXAMINATION –WINTER-2022**

**Subject Code: 2638601****Date: 28/12/2022****Subject Name: Object Oriented Programming in JAVA****Time: 02:30 PM TO 5:00 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** Answer following questions. **14**
1. Draw compilation and interpretation process of Java.
  2. Define: Bytecode, Garbage Collector
  3. Write syntax of compiling and running a package java program.
  4. Write two checked exception and two unchecked exception name.
  5. Describe: i) Set ii) Map.
  6. Write syntax for iterating using Iterator class.
  7. Draw Thread Lifecycle.
- Q.2** (a) Explain Object oriented programming concepts in java. **07**  
 (b) i) Discuss final keyword used with variable, method and class. **03**  
 ii) Describe default and parameterized constructor with example. **04**
- OR**
- (b) i) Discuss Accessibility of access modifiers in different condition. **03**  
 ii) Explain this keyword and its related concepts with example. **04**
- Q.3** (a) Discuss passing and returning object as parameters with example. **07**  
 (b) Assume that there are two packages, student and exam. A student package contains Student class and the exam package contains Result class. Write a java program that generates mark sheet for students. **07**
- OR**
- (a) Discuss concept of variable length argument and overloading variable length argument method with example. **07**  
 (b) Write a java program to implement multiple inheritance. Also explain the concept implemented. **07**
- Q.4** (a) Explain Custom Exception. Create custom exception named NoBalanceException and throw NoBalanceException with a message when user enters debit amount which makes balance of account less than 500. **07**  
 (b) i) Create ArrayList, add elements to it, display those elements and remove elements. **03**  
 ii) Explain autoboxing and unboxing with example. **04**
- OR**
- (a) Describe abstract class. Create abstract class called Shape which has three subclasses Triangle, Rectangle, and Circle. Define one method area () in the abstract class and override this method in these three subclasses to calculate for specific object and print the result. **07**  
 (b) Explain Java Collection Framework with its hierarchy. List and explain methods of Collection interface with its signature and use. **07**
- Q.5** (a) Explain thread synchronization and its need using example. **07**  
 (b) Describe Generics having one and two type parameters with example. **07**
- OR**
- (a) Explain use of wait, notify and notify all with example. **07**  
 (b) Explain character stream classes and write program to read a File. **07**