Term End External Examination 4th Semester (Ses - July 2024)

Subject: Computer Application

Course No and Title: CAPC1422M/Object Oriented Programming through JAVA

Time: 2.15 hours Max Marks:100 Min. Marks:40

Section A: Objective Type Questions

Q1. Choose the appropriate Answer: (8x1.5=12)

i. Which of the following are key features of Object-Oriented Programming (OOP)?

A Encapsulation **B** Inheritance

C Polymorphism **D** All of the above

ii. What is the output of the following program:

```
public class Test {
    public static void main(String[] args)
 {
        String str1 = "Hello";
        String str2 = "Hello";
        System.out.println(str1 == str2);
    }
 }
```

A true **B** false

C Compilation error **D** Runtime error

iii. Which access modifier allows a member to be accessible within the same package and subclasses?

A Private **B** Default

C Protected **D** Public

iv. Which of the following statements about interfaces is true?

A Interfaces can have instance variables **B** Interfaces can be instantiated

C Interfaces can contain abstract methods **D** Interfaces can have constructors

v. Which of the following is not a type of exception in Java?

A Checked exception **B** Unchecked exception

C Synchronous exception **D** Error

vi. Which of the following is a checked exception in Java?

A NullPointerException **B** ArrayIndexOutOfBoundsException

C IOException **D** ArithmeticException

vii. What is the function of super() in Java constructors?

A Calls the superclass constructor with default arguments **B** Calls the superclass constructor with specific arguments

C Calls the subclass constructor **D** Calls the constructor of a different class

viii. Which of the following are event sources in Java?

A JButton **B** JTextField

C JList **D** All of the above

Section-B: Descriptive Type Questions (Short Type)

Q2 : Answer all the Questions (8 x 4 =32)

i. What is the purpose of the `this` keyword.

ii. Explain the concept of garbage collection.

iii. Differentiate between method overloading and overriding in Java?

iv. How do you create a package in Java?

v. What is the difference between `throw` and `throws` in Java?

vi. Write a Java program to demonstrate the concept of encapsulation using getter and setter methods.

vii. Define thread priority in Java.

viii. What is an adapter class in event handling?

Section – C: Descriptive Type Questions (Medium Type)

Answer all the questions: (4 x 7=28)

Q 3. Discuss the scope and lifetime of variables in Java.

OR

Explain the role of the `static` keyword in Java with code snippets.

Q 4. Describe polymorphism and its implementation in Java

OR

Write a Java program to demonstrate method overriding.

Q 5. What are the benefits of exception handling in Java? Demonstrate its usage with the help of code snippets

OR

Write a Java program that demonstrates the usage of try, catch, and finally blocks

Q6. Discuss the MVC architecture in Swing.

OR

Write a Java program to create a simple Swing application with a JButton and a JTextField.

Section – D: Descriptive Type Questions (Long Type)

Answer any two of the following: (2 x 14=28)

Q 7. Discuss in detail the need for the OOP paradigm and provide a summary of OOP concepts.

Q 8. Explain hierarchical abstractions and forms of inheritance with examples.

Q 9. Write a Java program to implement a class for a bank account with methods to deposit, withdraw, and check balance. Write the necessary methods to perform various transactions

Q 10. Write a Java program to handle mouse events and display the coordinates of the mouse pointer when it is clicked.