Q/16

2012E1561

Candidate's Seat No:____

IMSC (CS) (Old) Sem.-5 Examination
Java Programming
December-2025

Time : 3.00 Hours]

[Max.Marks : 70

Instruction :

- Write both the sections in the separate answer book.
- Both Sections having equal weightage.
- Draw diagrams wherever necessary.
- Make assumptions wherever necessary

SECTION - I

Q.1 (A) Answer the following questions in one word or one line [Each question carries 1 Mark] [5 M]

a. What is JVM?
b. What is type casting?
c. Which OOP concept hides internal details?
d. What is Thread?
e. What is bytecode?

Q.1 (B) Answer the following in detail [Each question carries 2 Marks] (any 3) [6 M]

a. What is method overloading? Write a simple example.
b. Give two differences between array and ArrayList.
c. What is FileWriter? Write one example.
d. What is thread propriety?

Q.2 Answer the following in detail [Each question carries 4 Marks] [12 M]

a. What is OOP? Write it's advantages in detail.
b. What is inheritance? Give any three advantages
c. Explain thread life cycle with an example.

OR

Q.2 Answer the following in detail [Each question carries 4 Marks] [12 M]

a. Write a short note on FileInputStream and FileOutputStream with an example.
b. Discuss the advantages, limitations, and applications of arrays.
c. Describe any four advantages of using classes and objects in software development.

Q.3 Answer the following questions in detail [Each question carries 6 Marks] [12 M]

a. Describe how encapsulation, inheritance, abstraction, and polymorphism contribute to the advantages of OOP.
b. Write a Java program to demonstrate single inheritance where the base class contains a parameterized constructor to initialize student details (name, roll number), and the derived class contains its own constructor to initialize marks. Display all details using a method.

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E1561-2

OR

Q.3 Answer the following questions in detail [Each question carries 6 Marks] [12 M]

a. Explain thread creation using Thread class and Runnable interface in detail.
b. Write a Java program to show how super() keyword is used to call the parent class constructor. Create a class Vehicle with a constructor that prints the company name. Create a subclass Car that calls the base constructor and prints car model details.

SECTION - II

Q.4 (A) Answer the following multiple-choice questions by choosing the correct option: [Each question carries 1 Mark] [5 M]

a. What is JRE and JDK?
b. In which package thread classes exist?
c. Which pillar is achieved using abstract class?
d. Name two ways to create a thread.
e. What is object?

Q.4 (B) Answer the following in detail. [Each question carries 2 Marks] (any 3) [6 M]

a. What is constructor? How is it different from a method?
b. What is jagged array?
c. What is the function of read() method?
d. What is join() method? Why is it used?

Q.5 Answer the following in detail [Each question carries 4 Marks] [12 M]

a. State any four methods of thread class with its syntax and example.
b. Explain the advantages and disadvantages of an array.
c. Write a java program to enter any number and check that is it prime or composite Create a class named prime and also to initialize variable use constructor.

OR

Q.5 Answer the following in detail [Each question carries 4 Marks] [12 M]

a. Explain File Class and its important methods.
b. Explain how inheritance contribute to OOP's advantages.
c. What is runtime polymorphism explain it with an example.

Q.6 Answer the following questions in detail. [Each question carries 6 Marks] [12 M]

a. Explain ArrayList in detail with features, advantages, and methods.
b. Write a Java program that accepts two numbers from the user and swaps their values using classes and constructor overloading. The program should define a class that contains overloaded constructors to initialize the numbers, perform the swapping operation, and display the values before and after swapping.

OR

Q.6 Answer the following questions in detail. [Each question carries 6 Marks] [12 M]

a. Write a detailed note on the advantages of OOP with examples.
b. Write a Java program using inheritance where class Employee has a constructor to initialize name and basic salary. Create a subclass Salary that calculates DA, HRA, and Net Salary using its constructor. Display salary details using a method.