

Enrollment No.: 1006



Darshan Institute of Computer Application  
MCA | Sem-1 | Winter-2024

Course Code	: 2305CS102	Date	: 11-12-2024
Course Name	: Object Oriented Programming using Java	Duration	: 150 Minutes
		Total Marks	: 70

**Instructions:**

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

- Q.1 (A) Define the purpose of JVM, JRE, JDK and JIT. 4
- (B) Java is Robust, Architectural Neutral and Interpreted language. Justify your answer. 3

OR

Explain Bit-wise Operator in java.

- (C) Implement java program to print factorial of a given number using function. This program should run until user enters -1 to exit (e.g.  $5! = 5*4*3*2*1$ ). 7

OR

Implement a java program for cricket score board using 2-Dimensional Array. User should enter number of over and runs for each ball or option such as No Ball, Wide Ball or Wicket. Print average run rate and total run.

- Q.2 (A) Write the concept of Array of Objects in java using Student class to print detail of three students. 4
- (B) Explain purpose of Encapsulation, Inheritance, Polymorphism and Abstraction in java. 3

OR

Explain 'this' keyword in java with appropriate example.

- (C) Implement a java program that demonstrate the use of static variable, static method and static block. 7

OR

Implement a Java program to create a class called Car with instance variables name, model, and year. Implement a parameterized constructor that initializes these variables and assigns default values if not provided. Print the values of the variables.

- Q.3 (A) Explain uses of Super keyword. Illustrate a program to call superclass constructor. 4
- (B) Explain three uses of final keyword in java with example. 3

OR

Explain dynamic method dispatch in java?

- (C) Implement a Java program to create an abstract class BankAccount with abstract methods deposit() and withdraw(). Create subclasses: SavingsAccount and CurrentAccount that extend the BankAccount class and implement the respective methods to handle deposits and withdrawals for each account type. 7

OR

Implement a java program for stack using interface with two methods push() and pop().

- Q.4 (A) Explain use of package in java? Illustrate an example to create user defined package in java. 4

- (B) Compare Throw and Throws. Explain throw statement with example. 3

OR

Compare checked and unchecked exception. Write any two checked exception in java.

- (C) Implement a Java program to create a method that takes a string as input and throws an exception if the string does not contain vowels. 7

OR

Implement Thread Synchronization with Producer-Consumer example.

- Q.5 (A) Write a short note on Character Stream classes. 4

- (B) Explain any three methods of File class with example. 3

OR

Explain Iterator interface in java with example.

- (C) Implement File Input Stream and File Output Stream in java with example. 7

OR

Implement Link List in java using List Interface

\*\*\*