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| **SESSION** | **NOV-DEC 2023** |
| **PROGRAM** | **MCA** |
| **SEMESTER** | **IV** |
| **course CODE & NAME** | **DCA7102 - javaprogramming** |
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**SET-I**

**1. Explain java virtual machine? Why is java considered as platform independent? 10**

**Ans 1.**

**Understanding Java Virtual Machine (JVM)**

Java Virtual Machine (JVM) is a pivotal component of Java's architecture. It is a virtual machine that enables a computer to run Java programs as well as programs written in other languages that are also compiled to Java bytecode. The JVM operates on the principle of “Write Once, Run Anywhere” (WORA), which is central to Java's philosophy.

The JVM works by converting Java Its Half solved only

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**2. What are packages in java? Explain any 4 pre- defined packages in details 10**

**Ans 2.**

In Java programming, the concept of packages serves as a fundamental organizational structure. A package in Java is a mechanism to encapsulate a group of classes, interfaces, and sub-packages. This not only helps in categorizing the classes based on functionality but also aids in avoiding name conflicts, controlling access, and facilitating the search and use of classes, interfaces, enumerations,

**3. Explain the collection hierarchy. 10**

**Ans 3.**

Java's Collection Framework is a robust architecture that allows developers to manage groups of objects. This framework is part of the Java Collections API, which provides a set of interfaces and classes for storing and manipulating groups of data as a single unit, a collection. The Collection Framework is designed to meet several objectives, such as high performance, providing a standard interface, and allowing different types of collections.

**The Collection**

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SET-II

**4. Explain the various categories of primitive data types used in java programming. Write a suitable java program for any two primitive data type categories. 10**

**Ans 4.**

Java, as a robust and versatile programming language, categorizes its data types into two primary types: primitive and non-primitive. The primitive data types, fundamental to Java, are predefined by the language and named by a reserved keyword. These types serve as the building blocks for data manipulation within Java. Let's explore these categories in detail and illustrate their application through examples.

**Primitive Data Types in Java**

Primitive data types in Java are

**5. What are exceptions in java? Explain any 4 exception classes in detail. Write a suitable java program to explain the utility of exceptions. 10**

**Ans 5.**

**Understanding Exceptions in Java**

In Java, an exception is an event that disrupts the normal flow of a program. It is an object that is thrown at runtime when an unexpected situation occurs. Exceptions in Java provide a way to handle errors gracefully and maintain the normal flow of application execution. There are two types of exceptions in Java: checked exceptions and unchecked exceptions. Checked exceptions are checked at compile-time, while unchecked exceptions are checked at runtime.

1.

**6. Differentiate between JDBC and ODBC drivers? 10**

**Ans 6.**

**JDBC versus ODBC Drivers: A Comparative Analysis**

In the realm of database connectivity, JDBC (Java Database Connectivity) and ODBC (Open Database Connectivity) drivers serve as critical bridges between applications and databases. Despite their common goal of facilitating database access, these two technologies exhibit distinct characteristics, design philosophies, and operational frameworks, which are essential to understand for effective