FUNDAMENTALS OF PROGRAMMING IN JAVA

Unit	Unit Details
1	**Introduction to Java**
1.1	Explain the structured programming paradigm
1.2	Explain the features of Java as a OOP language
1.3	Describe Java platform and its components
1.4	List the different editions of Java
1.5	Explain the evolution of Java Standard Edition (Java SE)
1.6	Describe the steps for downloading and installing Java Development Kit (JDK)
2	**Application Development in Java**
2.1	Explain the structure of a Java class
2.2	List and explain steps to write a Java program
2.3	Identify the benefits of NetBeans IDE
2.4	Describe the various elements of NetBeans IDE
2.5	Explain the various components of JVM
2.6	Describe comments in Java
3	**Variables and Operators**
3.1	Explain variables and their purpose
3.2	State the syntax of variable declaration
3.3	Explain the rules and conventions for naming variables
3.4	Explain data types
3.5	Describe primitive and reference data types
3.6	Describe escape sequence
3.7	Identify and explain different type of operators
4	**Decision-Making Constructs**
4.1	Identify the need for decision-making statements
4.2	Explain the if statement
4.3	Explain the various forms of if statement
4.4	Explain the switch-case statement
4.5	Compare the if-else and switch-case statement
4.6	Explain the use of strings and enumeration in the switch-case statement
5	**Looping Constructs**
5.1	List the different types of loops
5.2	Identify the purpose of the do-while statement
5.3	State the need of for statement
5.4	Describe nested loops
5.5	State the purpose of jump, break statement and continue statements
6	**Classes and objects**
6.1	Explain the process of creation of classes in Java
6.2	Explain the instantiation of objects in Java
6.3	Explain the purpose of instance variables and instance methods
6.4	Explain constructors in Java
6.5	Explain the memory management in Java

6.6	Explain object initializers
7	**Methods and Access Specifiers**
7.1	Describe methods
7.2	Explain the process of creation and invocation of methods
7.3	Explain passing and returning values from methods
7.4	Describe access specifiers and the types of access specifiers
7.5	Explain the use of access specifiers with methods
7.6	Explain the concept of method overloading
8	**Arrays and Strings**
8.1	Describe an array
8.2	Explain declaration, initialization, and instantiation of a single-dimensional array
8.3	Define stored procedures
8.4	Describe String and StringBuilder classes
8.5	Describe Wrapper classes, autoboxing, and unboxing
9	**Inheritance and polymorphism**
9.1	Describe inheritance
9.2	Explain the types of inheritance
9.3	Explain the use of super keyword
9.4	Explain method overriding
9.5	Describe Polymorphism
9.6	Explain virtual method invocation
9.7	Explain the use of abstract keyword
10	**Exceptions**
10.1	Describe exception handling
10.2	Explain types of errors and exceptions
10.3	Explain try-catch block
10.4	Explain finally block
10.5	Explain execution flow of exceptions
10.6	Explain guidelines to exception handling