

# Java Foundations Certified Junior Associate

## 考试大纲

## What Is Java?

- Describe the features of Java
- Describe the real-world applications of Java

## Java Basics

- Describe the Java Development Kit (JDK) and the Java Runtime Environment (JRE)
- Describe the components of object-oriented programming
- Describe the components of a basic Java program
- Compile and execute a Java program

## Basic Java Elements

- Identify the conventions to be followed in a Java program
- Use Java reserved words
- Use single-line and multi-line comments in Java programs
- Import other Java packages to make them accessible in your code
- Describe the java.lang package

## Working with Java Data Types

- Declare and initialize variables including a variable using final
- Cast a value from one data type to another including automatic and manual promotion
- Declare and initialize a String variable

## Working with Java Operator

- Use basic arithmetic operators to manipulate data including +, -, \*, /, and %
- Use the increment and decrement operators
- Use relational operators including ==, !=, >, >=, <, and <=
- Use arithmetic assignment operators
- Use conditional operators including &&, ||, and ?
- Describe the operator precedence and use of parenthesis

#### Working with the String Class

- Develop code that uses methods from the String class
- Format Strings using escape sequences including %d, %n, and %s

#### Working with the Random and Math Classes

- Use the Random class
- Use the Math class

#### Using Decision Statements

- Use the decision making statement (if-then and if-then-else)
- Use the switch statement
- Compare how == differs between primitives and objects
- Compare two String objects by using the compareTo and equals methods

#### Using Looping Statements

- Describe looping statements
- Use a for loop including an enhanced for loop
- Use a while loop
- Use a do- while loop

- Compare and contrast the for, while, and do-while loops
- Develop code that uses break and continue statements

#### Debugging and Exception Handling

- Identify syntax and logic errors
- Use exception handling
- Handle common exceptions thrown
- Use try and catch blocks

#### Arrays and ArrayLists

- Use a one-dimensional array
- Create and manipulate an ArrayList
- Traverse the elements of an ArrayList by using iterators and loops including the enhanced for loop
- Compare an array and an ArrayList

#### Classes and Constructors

- Create a new class including a main method
- Use the private modifier
- Describe the relationship between an object and its members
- Describe the difference between a class variable, an instance variable, and a local variable
- Develop code that creates an object's default constructor and modifies the object's fields
- Use constructors with and without parameters
- Develop code that overloads constructors

#### Java Methods

- Describe and create a method

- Create and use accessor and mutator methods
- Create overloaded methods
- Describe a static method and demonstrate its use within a program