POSITIVE QUADRANT
TECHNOLOGIES
SERVING INFORMATION WORLDWIDE

Website: www.positivequadrant.in
Email: positivequadrants@gmail.com
Contact: +91 8169150592

COMPUTER SCIENCE 12TH

Programming & development

Course Curriculum

Website: www.positivequadrant.in
Email: positivequadrants@gmail.com
Contact: +91 8169150592

COMPUTER SCIENCE 12TH

Section A

Module 1: Boolean Algebra

- ➢ Propositional Logic
- ➢ Equivalence laws
- ➢ Binary Valued quantities
- ➢ Basic Theorem of Boolean Algebra

Module 2: Computer Hardware

- ➢ Elementary Logic gates
  - ▪ NOT
  - ▪ AND
  - ▪ OR
  - ▪ NAND
  - ▪ NOR
  - ▪ XOR
  - ▪ XNOR

- ➢ Application of Boolean Algebra and logic gates
  - ▪ Half adders
  - ▪ Full adders
  - ▪ Encoders
  - ▪ Decoders
  - ▪ Multiplexers
  - ▪ NAND
  - ▪ NOR as universal gates

Section B

Module 3: Programming in Java

- ➢ Review of Class XI Section B and C)

POSITIVE QUADRANT
TECHNOLOGIES
SERVING INFORMATION WORLDWIDE

Website: www.positivequadrant.in
Email: positivequadrants@gmail.com
Contact: +91 8169150592

Module 4: Objects

- ➢ Objects as data
- ➢ Object as an instance of a class
- ➢ Constructors
- ➢ Analysis of some real-world programming examples
- ➢ Basic input/output using Scanner from JDK
- ➢ Input/ output exceptions
- ➢ Tokens in an input stream
- ➢ Concept of whitespace

Module 5: Primitive values, Wrapper Classes, Types and casting

- ➢ Primitive values and types
    - ▪ Byte
    - ▪ Int
    - ▪ Short
    - ▪ Long
    - ▪ Float
    - ▪ Double
    - ▪ Boolean
    - ▪ Char

- ➢ Class as type of the object
- ➢ Class as mechanism for user defined types

Module 6: Variables, Expressions

- ➢ Variables as names for values
- ➢ Named constants (final)
- ➢ Expressions (arithmetic and logical) and their evaluation (operators, associativity, precedence)
- ➢ Assignment operation
- ➢ Difference between left hand side and right hand side of assignment

Module 7: Statements, Scope

- ➢ Statements
    - ▪ Conditional
    - ▪ If

POSITIVE QUADRANT
T E C H N O L O G I E S
SERVING INFORMATION WORLDWIDE

Website: www.positivequadrant.in
Email: positivequadrants@gmail.com
Contact: +91 8169150592

- If else
- If else if
- Switch case
- Ternary operator

- ➢ Looping
  - For
  - While
  - Do while
  - Continue
  - Break

- ➢ Grouping statements
  - Blocks
  - Scope
  - Visibility of variables

Module 8: Methods

- ➢ Methods
- ➢ Formal arguments and actual arguments in methods
- ➢ Static Method and Variables
- ➢ This operator

Module 9: Arrays, Strings

- ➢ Structured Data types
  - Arrays (single and multidimensional)
  - Address calculations
  - Strings
  - Examples algorithms that use structured data types

Module 10: Recursion

- ➢ Concept of recursion
- ➢ Simple recursive methods

POSITIVE QUADRANT
TECHNOLOGIES
SERVING INFORMATION WORLDWIDE

Website: www.positivequadrant.in
Email: positivequadrants@gmail.com
Contact: +91 8169150592

Section C

Module 11: Inheritance, Interfaces and Polymorphism

- ➢ Inheritance
- ➢ Super and derived classes
- ➢ Member access in derived classed
- ➢ Subclasses
- ➢ Abstract classes
- ➢ Class object
- ➢ Protected visibility
- ➢ Subclass polymorphism and dynamic binding

Module 12: Data Structures

- ➢ Basic data structures
  - ▪ Stack
  - ▪ Linear queue
- ➢ Conversion of infix to prefix and postfix notations
- ➢ Binary trees
- ➢ Tree traversals (conceptual)

Module 13: Complexity (Conceptual)

- ➢ Concept of complexity
- ➢ Input size
- ➢ Importance of dominant term
- ➢ Constants
- ➢ Best
- ➢ Average and worst case