

SEMESTER: III**ADVANCED JAVA-1****CODE :05ABSIT17312****CREDITS : 04****UNIT I - INTRODUCTION**

Java Evolution: Java History, Java Features, How Java Differs from C and C++, Java and Internet, Java Support Systems, Java Environment, Structure of Java Program, Java Virtual Machine. - Overview of JAVA Language: Simple Java program, More of Java Statements, implementing a Java Program, Command Line Arguments, Constants, Variables, Data Types, Declaration of Variables, Giving Values to Variables, Scope of Variables, Symbolic Constants, Type Casting, Getting Values of Variables, Standard Default Values. - Operators and Expressions: Introduction, Arithmetic Operators, Relational Operators Logical Operators, Assignment Operators, Increment and Decrements Operators, Conditional Operators, Bitwise Operators, Special Operators, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversion and Associatively, Mathematical Functions.

UNIT II

Decision Making and Branching: Introduction, Decision Making with if Statement, Simple if Statement, The if....else Statement, Nesting of if.....Else Statements, The else if Ladder, The Switch Statement, The ?: Operator. Decision Making and Looping: Introduction. The while Statement, the do...while Statement, the for Statement, Jumps in Loops, LabeledLoops. - Classes, Objects and Methods: Introduction, defining a Class, Adding Variables, Adding Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting ofMethods. - Arrays, Strings and Vectors: Introduction to Arrays, One-dimensional Arrays, creating an Array, Two -Dimensional Arrays, Creating an Array, Two – dimensional Arrays, Strings, Vectors, WrapperClasses.

UNIT III:

Inheritance: Introduction, Extending a Class, Superclass variable referring to a sub class, Creating a Multilevel Hierarchy, Order of calling constructors, Final Variables and Methods, Finalizer methods, Abstract Methods and Classes, VisibilityControl - Polymorphism:Introduction, Method Overloading, Method Overriding, Dynamic Method Binding, Interfaces Defining Interfaces, Extending Interfaces, ImplementingInterfacesImplementing multiple Inheritance by using Interface.Accessing Interface Variable. - Packages: Introduction, Putting Classes together, Java API Packages, Using System Packages, Naming Conventions, Creating Packages, accessing a Package, using a Package, adding a Class to a Package, HidingClasses. - Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class, Stopping and Blocking a thread, Life Cycle of a thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface.

UNIT IV

Exception Handling: Introduction, Types of Errors, Exceptions, Types of exceptions, try and catch, Multiple catch, Nested Try, throw, throws, finally and built-in exceptions, Throwing our own exceptions. - Applet Programming: Introduction, How Applets Differ from Applications, preparing to Write Applets, Building Applet Code, Applet Life Cycle, creating an Executable applet, designing a Web Page, Applet Tag, Adding Applet to HTML File, running the Applet, More About HTML Tags, Displaying Numerical Values, Getting Input from the User, passing parameters to applets.- Event Handling: Introduction, Event handling Mechanisms, Delegation Event Model, Event Classes, Sources of Events, Event Listener Interfaces, Handling Mouse and Keyboard Events, Adapter Classes. - AWT Classes: Introduction, Window Fundamentals, working with frame windows, creating a frame window in an applet, creating a windowed program, Displaying Control Fundamentals ,Labels, Buttons, Check Boxes, Check Box Group, Choice Control, Lists, Scroll Bar, Text Field, Text Area, Layout Managers.

PRACTICAL

CREDITS : 02

1. Write a program to find factorial of list of number reading input as command line argument
2. Write a program to find factorial of list of number reading input as command line argument.
3. Write a program to find area of geometrical figures using method.
4. Write a program in java, in which a method named add is overloaded. The add method sums two integer values, one integer value and one double value, two double values.
5. Design a class to represent a bank account include the following members:
Account Number Name of the Depositor Balance amount
To assign initial values To deposit an amount
To withdraw an amount after checking balance To display the details
6. Write a program to implement constructor overloading by passing different number of parameter of different types.
7. Write a program to show inheritance in java.
8. Write a program to calculate bonus for different departments using method overriding.
9. Write a program to sort list of elements in ascending and descending order and show the exception handling.
10. Write a program to implement thread, applets and graphics by implementing animation of ball moving.
11. Write a java program to implement the concept of exception handling using pre defined exception.
12. Write a java program to implement applet concept which shows the sum of two numbers.
13. Write an Applet program in which you place a button and a text area. When you click on button, in text area Your name and address is displayed. You have to take your name and address using<PARAM>.
14. Write a program to implement mouse events and keyboard events.

References:

- “Advanced Java Programming” by Uttam Roy
- “Advance Java” by Gajendra Gupta
- “Advance Java Programming” by Kanika Lakhani

- “Java Programming Advance Topics” by Wigglesworth and Wandra

OBJECT ORIENTED PROGRAMMING (USING C++)

COURSE CODE:05ABSIT17311

CREDITS: 04

UNIT I:

Overview of C++, Sample C++ program, Different data types, operators, expressions, and statements, arrays and strings, pointers & user defined types, Function Components, argument passing, inline functions, function overloading, recursive functions-**Classes & Objects:** Class Specification, Class Objects, Scope resolution operator, Access members, Defining member functions-Data hiding, Constructors, Destructors, Parameterized constructors, Static data members, Functions.

UNIT II

Friend functions, passing objects as arguments, returning objects, Arrays of objects, Dynamic objects, Pointers to objects-**Constructors & Destructors** Copy constructors, Generic functions and classes, Applications-Operator overloading using friend functions such as +, -, pre-increment, post-increment, [] etc., overloading <<, >>-**Inheritance –:** Base Class, Inheritance and protected members, protected base class inheritance, inheriting multiple base classes, passing parameters to base class constructors, Granting access, Virtual base classes.

UNIT III

Virtual functions: Polymorphism: Virtual function-Function calling a Virtual function through a base class reference, Virtual attribute is inherited-Virtual functions are hierarchical, Pure virtual functions-Abstract classes, Using virtual functions, Early and late binding.

UNIT IV:

Exception Handling and Templates-Exception handling fundamentals-Exception handling options-Templates: Function Templates-Class Templates STL: An overview, containers-vectors

PRACTICAL

CREDITS: 02

STATIC MEMBER VARIABLES: To write a C++ program to illustrate the static variable functionality using sum of a Fibonacci series as an example

DEFAULT ARGUMENTS: To write a C++ program to demonstrate default arguments with a simple example.

CLASS AND OBJECTS: To demonstrate class and object concept using C++ program.

CONSTRUCTORS: To write a C++ program to demonstrate the use of constructors

DESTRUCTORS: To write a C++ program to demonstrate the use of destructors.

OPERATOR OVERLOADING: To write a C++ program to illustrate the operator overloading concept using Matrix addition as an example.

SINGLE INHERITANCE: To write a C++ program to illustrate the single inheritance using banking system as an example.

HYBRID INHERITANCE: To write a C++ program to illustrate hybrid inheritance concept using student database creation as an example.

VIRTUAL FUNCTIONS: To write a C++ program to illustrate virtual function implementation.

DYNAMIC POLYMORPHISM: To write a C++ program to illustrate dynamic polymorphism using different shapes as an example.

EXCEPTION HANDLING: To write a C++ program to illustrate exception handling concept using stack operation as an example.

INLINEFUNCTIONS: To write a C++ program to illustrate inline function concept using small mathematical operations as an example.

References:

- Stanley B.Lippmann, JoseeLajore: C++ Primer, 4th Edition, Pearson Education, 2005.
- Paul J Deitel, Harvey M Deitel: C++ for Programmers, Pearson Education, 2009.
- K R Venugopal, RajkumarBuyya, T Ravi Shankar: Mastering C++, Tata McGraw Hill, 1999.
- E Balagurusamy: Object Oriented Programming with C++, Tata McGraw Hill
- Herbert Schildt: The Complete Reference C++, 4th Edition, Tata McGraw Hill

COURSE: STATISTICS – I

COURSECODE:05ABSIT17313

CREDITS :4

UNIT I - INTRODUCTION

Definition and scope of statistics, Data Collection, Presentation of numerical and categorical data - Measures of Central Tendency (Mean, Median, Mode for grouped and ungrouped data)- Measures of Dispersion (Range, standard deviation, coefficient of variation for grouped data).

UNIT II - CORRELATION AND REGRESSION ANALYSIS

Fabric dimensions- length, width, thickness, determination of fabric weight - GSM measurement and its application to different fabrics, - Cover factor, air permeability - Stiffness, drape, crease resistance - Abrasion resistance, pilling, bow & skew.

UNIT III -INTERPOLATION, EXTRAPOLATION AND TIME SERIES ANALYSIS.

Meaning, Significance, Binomial expansion (in case of missing values, only two missing values) - Newton's method of advancing differences. Computation of trend values under the method of Least Squares.

UNIT IV -PROBABILITY

Random Experiment- Sample space and events. Probability - Conditional probability and Bayes theorem (scope and simple problems)- Random variable, Probability distribution, Discrete and continuous random variable Mathematical expectation of random variables - Binomial, Poisson and Normal distribution (Simple Problems only)

References:

- A Course In Pure Mathematic- Margaret M. Gow
- A First Course in statistics - John B. Fraleigh
- Statistics - C. V. Durrell and A. Robson
- A First Course in statistics- Sheldon M. Ross