1. The Genesis of Java
Creation of Java, Why it is important to Internet, characteristics of Java

2. Basics of Programming
Data types and variables, Arrays operators Types casting and conversion
Condition & looping constructs Clauses and methods Overloading Inheritance

3. Packages & Interfaces
Defining Packages, Understanding & catch class path Access protection, Importing Packages, interfaces

4. Exception Handling
Exception types ,Using try & catch, Nested try, Using throw , throws finally
Built in Exception, Creating & using own Exception ,Subclasses

5. String Handling
String constructions, String operations, Standard String methods

6. Multithreading
Thread Life Cycle, Thread’s priorities, synchronization, runnable interface, IsAlive() & Join().Deadlock

7. I/O
Streams, byte Streams, Char Streams, Reading console I/P, Writing Console O/P
file I/O, sterilization
Examination 2

8. Applet Programming
Applet basics, Simple display methods. Repainting passing parameters

9. Event Handling
Event Classes, Sources of Events, Event listeners
10. User Interface

AWT classes Windows fundamentals, Component-window, Container-frame

Panel –canvas Checkbox, group list scrollbar

Graphics Text field, text area

Colors Menus dialogs.

Fonts AWT-controls-layout manager

Labels

Buttons

11. Introduction to Swings

Japplet, Icons, Labels, Text fields, Button, Combo Box, Tabbed panes, Scroll Panes,

Trees, Tables

Reference Books:

Complete reference –

Java - O’reilly

BCA 422 Business Applications

1. Sales Order Processing System

Sales Enquiry & preparation of Quotation

Order acceptance

Dispatch & Invoicing

Sales Analysis ( based on products, Customers )

Sales Invoice

2. Purchase Order Processing System

Enquiry & receive Quotation

Vendor selection ( Vendor analysis )

Order preparation ( with delivery schedule )

Order amendment

Receipt of material ( goods inward / GRN )

Supplier’s bill passing
Follow up of pending purchase order

3. Inventory Management System

Stock accounting & control

( raw material, work-in-progress, finished goods )

Stores transactions ( Receipts, Issues & adjustments )

Bin card & Stock ledger

Lead time

BOM processing with product configuration

Inventory levels – EOQ – ABC analysis

Inventory control Reports ( slow moving - non moving items )

4. Hotel Management System

Enquiry & Booking ( Room reservation )

Room & Services details

Check-in, Stay & Check-out of customer

Billing

Note ( For Teachers )

1. Each topic should be discussed thoroughly.

2. Need of computerization

3. Development of the system using ------

System flow, DFD , ERD, Related report format

Books :

· MIS by W.S. Jawadekar

· MIS by Jerome Kanter

· MIS by Gordon B. Davis

· MIS by Laudon and Laudon

· Marketing Management by Philip Kotler

· Production and Operations Management by Mayer

· Modern Production Management by R V Badi
BCA-424 Testing

1 Quality Concept

1.1 Definition of Quality, QA, SQA
1.2 Quality factors
1.3 Software Quality Metrics
1.4 Process Improvement
1.5 Process and Product Quality
1.6 The SEI Process Capability Maturity model, ISO, Six-Sigma
1.7 Process Classification

2 Software Quality Assurance & Software Reliability

2.1 Need for SQA
2.2 SQA Activities
2.3 Building blocks of SQA
2.4 SQA Planning & Standards
2.5 Reliability Measures
2.6 Reliability models

3 Verification & Validation

3.1 Verification & Validation Planning
3.2 Software inspections
3.3 Automated static Analysis

4 Software Testing Fundamentals

4.1 Testing objectives
4.2 How test information flows
4.3 Testing lifecycle
4.5 Test Cases – What it is?, Test Case Designing (Concept & introduction should be covered here. Detailed techniques should be covered in Unit No. 2.4)
5 Levels of Testing

5.1 Unit Testing

5.2 Integration Testing

5.3 System Testing

5.4 Acceptance Testing

5.5 Alpha testing & Beta testing

5.6 Static vs. Dynamic testing

5.7 Manual vs. Automatic testing

5.8 Testers workbench

5.9 11-steps of testing process (Only steps should be covered)

6 Different types of Testing

6.1 Installation Testing

6.2 Usability testing

6.3 Regression testing

6.4 Performance Testing

6.5 Load Testing

6.6 Stress testing

6.7 Security testing

7 Static & Dynamic Testing

7.1 Static Testing Technique

7.2 Review types: Informal Review, Technical or peer review, Walkthrough,
Inspection, static analysis

7.3 Review Meeting,

7.4 Review Reporting & Record keeping, Review guidelines & Review checklist

7.5 Data flow analysis

7.6 Control flow analysis

7.7 Cyclometric Analysis

7.8 Dynamic testing – need & Advantages
8 Black Box & White Box Testing (Test Case Design Techniques)

8.1 Functional Testing (Black Box) Equivalence partitioning, BVA, Cause-Effect graphing, Syntax testing (Concept & Test case generation only)

8.2 Structural Testing (White Box) Coverage testing, Statement coverage, Branch & decision coverage, Path coverage

8.3 Domain Testing

8.4 Non functional testing techniques

8.5 Validation testing Activities Low level testing, High level testing

8.6 Black box vs. White Box

9 Testing specialized Systems and Applications

1 Testing object oriented software

2 Testing Web based Applications

Reference:

2. Software Engineering - Sommerville
3. Introducing Software Testing - Louise Tamres
4. Effective Methods for software Testing - William Perry
5. Software Testing in Real World - Edward Kit
6. Software Testing Techniques - Boris Beizer
7. Software quality assurance: Principles and Practices - Nina Godbole, Narosa

BCA - 428 ORACLE

1 Introduction to RDBMS

1.1 What is RDBMS

1.2 Difference between DBMS & RDBMS

2 SQL (Structured Query Language)

2.1 Subdivisions of SQL
2.2 DDL, DML , DCL with all commands

2.3 Data Types

2.4 The CREATE TABLE Command,

2.5 Constraints in CREATE TABLE

2.6 Inserting Data into tables

2.7 Viewing Data in the tables (SELECT with all options )

2.8 Sorting data in a table (Order By)

2.9 Group By, Having clause

2.10 Delete operations

2.11 Updating the contents of the table

2.12 Modifying structure of a table

2.13 Renaming table, Truncating tables, Destroying table

2.14 Data Constraints (Primary Key, Foreign Key, Unique Key, Check, Default, Not Null)

2.15 Computations done on Table data (Arithmetic Operators, logical operators, range searching, pattern matching LIKE)

2.16 Functions (Aggregate functions, Numeric Functions, Character Function, Date function, Conversion function)

2.17 Sub queries

2.18 Joins (Simple Join, inner join, outer join, cross join)

3. Oracle Objects

3.1 Views

3.2 Sequences

3.3 Index

4. PL/SQL

4.1 Introduction to PL/SQL

4.2 Architecture of PL/SQL

4.3 Data types

4.4 PL/SQL blocks (attribute- %TYPE, %ROWTYPE)

4.5 Operators, functions, comparisons, numeric, character, date
4.6 Control Statements

1. Conditional control (if statement)
2. Interactive control (Loops)
3. Sequential Control (GOTO statement)

5. Error Handling (Exception handling)
   5.1 Pre-defined,
   5.2 User defined

6. Functions, Procedures

7. Cursors
   7.1 Definition
   7.2 Types of cursors (Implicit, explicit)

8. Triggers

9. Packages