

Tilak Maharashtra University
Bachelor of Computer Applications (BCA)
Second Year
BCA 421- Java
Examination 1

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

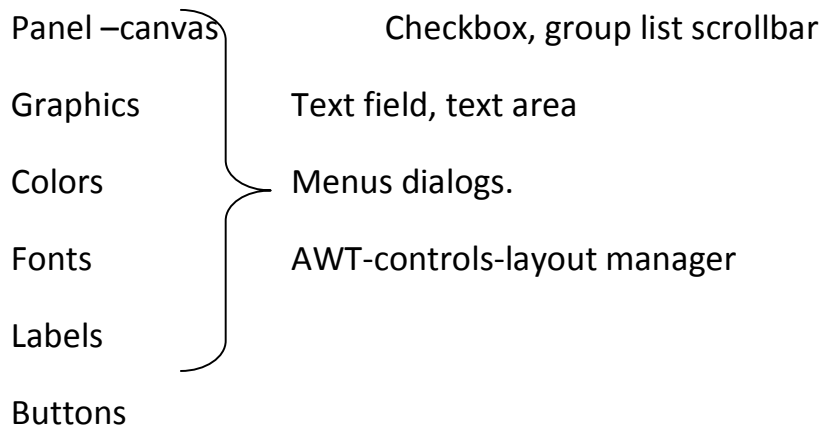
Applet basics, Simple display methods. Repainting passing parameters

9. Event Handling

Event Classes, Sources of Events, Event listeners

10. User Interface

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



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

Examination 1

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

Examination 2

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-423 Advanced Web Designing

Examination 1

Chapter 1: HTML Basics

Definition of HTML, Markup language, hypertext etc, html tags-tag syntax. Structure of html document- head section and body section.

Block level elements Text level elements, Font tag, base font tag, big and small tags, bold italic and underline tags, the strike, teletype and BR tag, subscript and superscript tags, the quote tag.

Heading tag and attributes, paragraph tag, center and block quote tags, hr tag the preformatted tag lists-ordered and unordered lists, definition lists.

Images and colors-

background images and colors and their attributes.

Chapter 2: Hyperlinks & Table

Anchor tag, href, title attribute, Table element, TR, TD, TH tags, caption elements, attributes of the table tag.

Frames & Forms

Creating frames-vertical, horizontal and grid of frames, attributes of the frameset element, frame tag and its attributes, linking frames.

The form tag-attributes- action, method the input elements and its types-text password checkboxes, radio buttons, submit and reset buttons, select tag, text area tag.

Java Script

Chapter 3: Introduction to Java Script

Origins of Java script, Java script characteristics, Common programming concepts Java & Java script, Server Side vs Client Side Application, Annotating Code with Comments

Chapter 4: Working with Variables & Data

Communicating with the user, Variables Keyword and Reserved Words, Expression Operators,

the on Load Event Handlers, Functions, Methods and Events, Defining Function, Calling a Function,

Controlling Programme Flow & The *do.while* Statement

The *if else* statement, the *while* statement, the *for* statement, the *break* statement, the *continue* statement, the *switch* statement

Chapter 5: The Java Script Object model

The Java Script Object Hierarchy Model Commonly Used Objects, The window Object

The with statement, The document Object The Image Object The history Object The location Object The navigator Object

Examination 2

Chapter 6: Java Script Objects

Java Script Language Objects, The string Objects, string Objects Methods, Evaluating Strings, The Array Objects, The Date Time Objects, The Math Objects, The form Objects, The buttons Objects, The checkbox Objects, The Text & text area Objects, The radio button Objects, The select Objects, Form validation.

Active Server Pages

Chapter 7 : Active Server Pages

ASP Mechanics, What are ASP Features? Virtual Directories and ASP Applications
ASP Delimiters, Starting Web Applications, How ASP page gets executed.

Using VB Script

Differences Bet. VB Script and Java Script, Declaring Variables with VB Script
Program Flow

Chapter 8: ASP Intrinsic Objects

Scripting Context, Server, Application, Sessions, Request, and Response Objects,
error, Cookies

Chapter 9: Active X Data Objects

Open Database Connectivity (ODBC) and Ole DB, Active X Data Objects,
Registering Data Source names

BCA-424 Testing

Examination 1

1 Quality Concept

- 1 Definition of Quality, QA, SQA
- 2 Quality factors
- 3 Software Quality Metrics
- 4 Process Improvement
- 5 Process and Product Quality
- 6 The SEI Process Capability Maturity model, ISO, Six-Sigma
- 7 Process Classification

2 Software Quality Assurance & Software Reliability

- 1 Need for SQA
- 2 SQA Activities
- 3 Building blocks of SQA
- 4 SQA Planning & Standards
- 5 Reliability Measures
- 6 Reliability models

3 Verification & Validation

- 1 Verification & Validation Planning
- 2 Software inspections
- 3 Automated static Analysis

4 Software Testing Fundamentals

- 1 Testing objectives
- 2 How test information flows
- 3 Testing lifecycle
- 4 Test Cases – What it is?, Test Case Designing (Concept & introduction should be covered here. Detailed techniques should be covered in Unit No. 2.4)

Examination 2

5 Levels of Testing

- 1 Unit Testing
- 2 Integration Testing
- 3 System Testing
- 4 Acceptance Testing
 - 4.1 Alpha testing & Beta testing
- 5 Static vs. Dynamic testing
- 6 Manual vs. Automatic testing
- 7 Testers workbench
- 8 11-steps of testing process (Only steps should be covered)

6 Different types of Testing

- 1 Installation Testing
- 2 Usability testing
- 3 Regression testing
- 4 Performance Testing
 - 4.1 Load Testing
 - 4.2 stress testing
- 5 Security testing

7 Static & Dynamic Testing

- 1 Static Testing Techniques
- 2 Review types: Informal Review, Technical or peer review, Walkthrough, Inspection, static analysis
- 3 Review Meeting,
- 4 Review Reporting & Record keeping, Review guidelines & Review checklist
- 5 Data flow analysis
- 6 Control flow analysis
- 7 Cyclometric Analysis
- 8 Dynamic testing – need & Advantages

8 Black Box & White Box Testing (Test Case Design Techniques)

- 1 Functional Testing (Black Box) Equivalence partitioning, BVA, Cause- Effect graphing, Syntax testing (Concept & Test case generation only)
- 2 Structural Testing (White Box) Coverage testing, Statement coverage, Branch & decision coverage, Path coverage

3 Domain Testing

4 Non functional testing techniques

5 Validation testing Activities Low level testing, High level testing

6 Black box vs. White Box

9 Testing specialized Systems and Applications

1 Testing object oriented software

2 Testing Web based Applications

Reference:

1. Software Engineering - R. Pressmen – 6th Ed

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 Publishing

BCA-425 E-Commerce

Examination 1

I Basic web commerce concepts, electronic commerce modes:

overview, EDI, electronic commerce with www-internet,commerce net advocacy.

II Approach to safe E-commerce:-

secure transport protocol and transaction, SEPP,SET, certificate for authentication, security

on web server and enterprise network.

III Electronic cash and Electronic payment scheme: Internet

monetary payment and security requirements; Payment & purchase order process, Online Electronic cash.

Examination 2

IV Internet/Intranet Security issues and solutions:

Needs for computer security, security strategies, Encryption.

MasterCard/visa secure Electronic Transaction: Introduction requirements and concepts, payment processing.

V Internet & web site Establishment:

Internet Resources for commerce: introduction, Web server Technologies, internet tools Relevant to commerce, internet applications for commerce.

VI Law related to IT ACT ,

Mobile and wireless computing fundamentals.

Reference Book :

Daniel Minoli & Emma Minoli : Web Commerce Technology Hand Book

Martyn Mallick : Mobile & wireless design essentials.

Tilak Maharashtra Vidyapeeth – Pune

BCA Syllabus – IV Semester

Cyber Security

EXAM 1

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| Chapter 1 | Basics of Networking |
| Chapter 2 | Introduction To Cyber Security And Ethical Hacking & What Is Social Engineering? |
| Chapter 3 | Information Gathering |
| Chapter 4 | Operating System Attacks |
| Chapter 5 | Application Attacks |

EXAM 2

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| Chapter 6 | Reverse Engineering & Cracking Techniques |
| Chapter 7 | Email Hacking |
| Chapter 8 | Malware Attacks & Countermeasures |
| Chapter 9 | Networks Based Attacks |
| Chapter 10 | IDS & Firewalls |
| Chapter 11 | Cryptography with Different Applications |