University Centre for Distance Learning

Syllabi & Scheme of Examination
BCA-3rd Year

Chaudhary Devi Lal University

Sirsa (Haryana)

Website:- www.cdlu.ac.in

SCHEME OF EXMINATION

BCA – 3RD YEAR

Paper Code	Course Nomenclature	Ext. Ass.	Inter. Ass.	Min.Pass Marks	Time
311	Visual Programming Using VB	70	30	35	3 Hrs
312	Software Engineering	70	30	35	3 Hrs
313	Java Programming	70	30	35	3 Hrs
314	Computer Networks	70	30	35	3 Hrs
	Optional Papers	70	30	35	3 Hrs
315	Operating system				
316	System Programming				
317	Management Information System				
318	Software Testing and Quality Assurance				
319	Software lab - 1 (Based on 311)	100		40	
320	Software lab - 2 (Based on 313)	100		40	

Total marks 700

Eight Questions will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks. Each theory paper will be of three hours duration. Minimum pass marks are 35 in each theory paper and practical (40 marks) and aggregate 40%. Out of 305 (i), (ii), (iii) and (iv) students will have to choose/opt. one subject.

Paper - 311: Visual Programming Using VB

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Introduction and Programming Fundamentals of VB

Introduction to Visual Basic, IDE and its Components, VB Data type, Variable Scope, Module, Conditional Statement, Looping, Procedure, Function, Event, Forms Controls (Property, Event, Method) Control Array, Dilogbox, MsgBox, InputBox, Multiple Module Projects, MDI forms, Menu.

Graphical Application in VB

Draw (Line, Circle, Box, Ellipse) Animations, Graphical Command Button.

Object - Oriented Programming in VB.

Database Handling

Introduction to Database programming in VB, Data Bound Control and DAO, Recordset, Object, Introduction to Data Report.

Basic ActiveX and Common Dialog Boxes, Input/Output

Introduction ActiveX Control, Common Dialog Control, File Operation.

Books Suggested:

1. Mastering Visual Basic: Evangelos Petroutsos – BPB Publication.
2. Visual Basic - Garry Cornel - Tata McGraw - Hill.
3. Bradley J.C. Programming with Visual Basic 6, Tata McGraw Hill.

Paper - 312: Software Engineering

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks.

Minimum pass marks are 35.

Introduction to Software Engineering

Definition of Software and Software Engineering, Software Characteristics, Software Process, Software Crisis, Software Life Cycle Models; Linear Sequential Model, Build and Fix Model, Prototype Model, Waterfall Model, Iterative Enhancement Model and Spiral Model, Selection of Life Cycle Model.

Software Project Planning

Project Planning, Size Estimation, Cost Estimation, Cost Constructive Model, Software Risk Management.

Software Requirements Analysis and Specification

Requirement Elicitation, Requirement Analysis; Tools for requirement Analysis - Entity relationship diagrams, Data Flow Diagrams, Data Dictionaries, Requirement Documentation.

Design Concepts & Principles

Design Definition & Objectives, Modularity, Strategies of Design.

Software Testing

Testing Definition, Testing Objectives, Verification & Validation, White box Testing, Black Box Testing, Levels of Testing; Unit testing, Integration testing, System testing.

Software Maintenance

Maintenance Definition, Categories of Maintenance, Problems During Maintenance, Maintenance Models - Quick Fix Model, Iterative Enhancement Model, Reuse Oriented Model, Boehm's Model, Taute Model.

Books Suggested:

1. Software Engineering - By KK Aggarwal & Yogesh Singh; New Age Inter national Publishers (Second Edition)
2. An Integrated Approach to Software Engineering - By Pankaj Jalote.
3. Software Engineering - A Practitioner's Approach, Sixth Edition, By Roger S. Pressman, McGraw Hill.

Paper - 313: Java Programming

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Introduction to JAVA

Introduction to Java and its Featurs, JDK and its Components, Java Virtual Machine, Object Oriented Principle, Object and Classes, Java Keywords, Variable, Data types and Literals in Java, String, Operators and Casting, Control of Flow, (Selection Statements, Iteration Statements), Command Line Argument.

Classes and Inheritances:

Introduction to Class and Object, Method, Overloading Method, Constructor, Constructor Overloading, this keyword, Introduction to Inheritance, Using Super, Mutlilevel Hierarchy, Abstract class, Using Final.

Package and Interface

Package (Defining Package, Finding Package), Introduction to interface, Defining and Implementing of Interface, Predefined Package.

Exception Handling and Threads

Exception Handling, Type of Exception, Try, Catch and Finally, Multiple Catch blocks, Nested Try Statements, throw, throws Thread Model, Mutlithreading

Applet Programming

Introduction to Applet, Applet Methods, Applets Life Cycle.

Books Suggested:

1. Programming in Java, 2nd Edition, E.Balaguruswamy TMH Publications ISBN 0-07-463542-5.

2. Peter Norton Guide to Java Programming, Peter Norton, Techmedia

   Publications ISBN 81-87105-61-5.

Paper - 314: Computer Networks

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks.

Minimum pass marks are 35.

Introduction to Computer Networks

Definition and Uses of Computer Networks, Network Software, ATM, Modem, Classification of Computer Netwrks, OSI Reference Model.

Physical Layer

Network Topologies, Transmission Mode, Multiplexing; FDM, WDM & TDM. Transmission Media; Guided Medid, Unguided Media (Wireless), Switching; Circuit Switching; Message Switching and Packet Switching;

Data Link Layer

Data Link Layer Design Issues, Error Detection and Correction, Elementary Data Link Protocols, Sliding Window Protocols, Channel Allocation Problem, Multiple Access Protocols - ALOHA, CSMA Protocols, Collision Free Protocols, Limited Contention Protocols.

Network Layer

Network Layer Design Issues, Routing Algorithms - The Optimality Principle, Shortest Path Routing, Flooding, Distance Vector Routing, Link State Routing, Hierarchical Routing, Routing for Mobile Hosts, Congestion Control Algorithms - General Principal of Congestion Control, Congestion prevention Policies, Load Shedding.

Application Layer:

Domain Name System (DNS), Electronic Mail, File Transfer Protocols (FTP), World Wide Web, Cryptography.

Books Suggested:

1. Data Communication & Networking - Behouz A. Forouzan, TMH

2. Computer Network - A.S. Tanenbaum, Pearson Education.

Paper - 315 Operating System

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Introduction:

Definition, functions and types of operating system, System components, Operating system services, System Calls, System Programs, System Structure.

Process Scheduling:

Process Concepts, Process State & Process Control block, Process Scheduling, Scheduling, Criteria, Scheduling Algorithms, Multiple - Processor Scheduling Real - Time Scheduling, Threads

Deadlock

Deadlock, Deadlock Characteristics, Method for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.

Memory Management:

Logical versus physical address space, Swapping Contiguous Allocating, Paging, Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement, Page Replacement Algorithms.

Disk Scheduling and Storage Allocation.

Books Suggested:

1. Operating System Concepts by Silberschatz & Galvin, Addison Wesley Publication 6th Edition.
2. Operating System Concepts & Design by Milan Milen Kovic, TMH

   Publication.

Paper - 316 System Programming

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Introduction to System Software:

Definition, Components of System Software, evolution of System Software.

Assmeblers:

Elements of assembly language programming, overview of assembly process, design options - one pass assembler.

Macro Proceesors

Basic functions, design options - rescursive macro expansions, general purpose macro processors.

Compilers

Overview of compilation process, Programming Language Grammar, Scanning, Parsing, Compilation of expressions, Compiler - Compilers, Cross - Complier, Interpreters.

Loaders & Linkage Editors

Loading, linking & relocation, program relocatibility, overview of linkage editing, linking for program overlays.

Software Tools

Spectrum of Software Tools, Text Editors, Debuggers, IDE.

Books Suggested:

1. System Software, 3rd ed., Beck L. Leland, Addison Wesley - 2000.
2. System Programming, Donovan John, Tata McGraw Hill.
3. System Programming and Operating System, Dhamdhere D.M. -

   Tata McGraw Hill.

Paper - 317 Management Information System

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Fundamentals of Information Systems, Systems approach to problem solving, Developing information system solutions, Levels of MIS (Top, Middle, Lower).

Corporate Databases & Database Management, Data Organization, Data Models, Data Security & Information Quality.

Transaction Processing Systems, Executive Information Systems, Decision Support Systems, Expert Systems, Information Systems in Marketing, Manufacturing, HRM, Accounting and Finance.

Information Resource Management, Planning, Implementing & Controlling Information Systems, Computer Crime, Ethics & Society.

Books Suggested:

1. Management Information Systems, Brein James O.
2. Information Systems for Modern Management, Murdick & Ross.
3. Management Information Systems - Strategy and Action, Parker C.S.
4. Structured Analysis and Design of Information Systems, Aktas A. Ziya.

Paper - 318 Software Testing and Quality Assurance

Maximum Marks: 70 Time: 3 Hrs.

Note: Eight Question will be set by the examiners covering whole syllabus. Students are required to attempt any five questions in all. All questions carry equal marks. Minimum pass marks are 35.

Testing and The Related Concepts: Significance & Potential; Testability and Features of Test Cases; Software Testing Techniques; White Box Testing, Black Box Testing,

Software Testing Strategies; Approach, Issues; Irrigation, Incremental, System, Alpha, Beta Testing Etc., Comparative Evaluation of Techniques; Testing Tools, Dynamic Analysis Tools, Technical Metrics for Software Quality Factors, Framework, Metrics for Analysis, Design, Testing Source Code Etc. Object Oriented Testing; OOT Stratgeies and Issues; Test Case Design, Interface Testing.

Quality Assurance: Concept, Importance and Essence; FTR, Structured Walk Through Techniques etc.

S/W Reliability, Reliability Models, Validation, Safety and Hazard Analysis; Features Affecting Quality of Software; SQA Plan, Quality Models.

Books Suggested:

1. Software Testing by Boris Beizer, Academic Press.
2. Software Engineering - By KK Aggarwal & Yogesh Singh; New Age

   International Publishers (Second Edition).
3. Software Engineering - A Practitioner's Approach, Sixth Edition, By Roger S. Pressman, McGraw Hill.
4. Art of Testing by G.J. Myers.
5. Software Quality by Robert H. Dunn.
6. Software Reliability by J.D. Musa, Okumota, Jaino, McGraw Hill.