OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING

FOR

B.Voc. (SOFTWARE DEVELOPMENT)
Programme Code : BSDB3PUP

First Year
(FIRST AND SECOND SEMESTER)
FOR
For 2023-24, 2024-25 & 2025-26 Sessions

PUNJABI UNIVERSITY PATIALA
(Established under Punjab Act no. 35 of 1961)

B. VOC. (Software Development) First Year (1st Semester)
Programme Code: BSDB3PUP
For 2022-23 Sessions

Code	Title of Paper	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
BSDB1101T	PUNJABI COMPULSORY-I OR PUNJABI COMPULSORY-I (MUDLA GYAN - I)**	4	70	30	100	3
BSDB1102T	Fundamentals of Computer and Software Development	4	70	30	100	3
BSDB1103T	Computer Programming using C	4	70	30	100	3
BSDB1104T	Web Designing using HTML and DHTML	4	70	30	100	3
BSDB1105P	Project – I	2	70	30	100	3
BSDB1106L	Software Lab – I (Based on BSDB1103T & BSDB1104T)	2	70	30	100	3
Total		**20**	**420**	**310**	**600**	

1. The breakup of marks for the practical will be as under:
   i. Internal Assessment 30 Marks
   ii. Viva Voce (External Evaluation) 20 Marks
   iii. Lab Record Program Development and Execution(External Evaluation) 50 Marks

2. The breakup of marks for the internal assessment for theory Subjects will be as under:
   i. Average of Both Mid Semester Tests / Internal Examinations 20 Marks
   ii. Attendance 5 Marks
   iii. Written Assignment/Project Work etc. 5 Marks

** Only those students who have not studied Punjabi up to matriculation can opt for Elementary Punjabi. The code for the paper is same.

OUTLINE OF PAPERS AND TESTS
FOR
B. VOC. (Software Development) First Year (2nd Semester)
Programme Code: BSDB3PUP
For 2022-23 Sessions

Code	Title of Paper	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
BSDB1201T	Functional Punjabi / Elementary Punjabi*	4	70	30	100	3
BSDB1202T	Fundamentals of DBMS	4	70	30	100	3
BSDB1203T	Fundamentals of Windows and Server Administration	4	70	30	100	3
BSDB1204T	Data Structure	4	70	30	100	3
BSDB1205L	Software Lab-II	2	70	30	100	3
BSDB1206L	Software Lab – III	2	70	30	100	3
BSDB1208T	Drug Abuse : Problem, Management and Prevention**		70	30	100	3
		20	**420**	**180**	**600**	

1. The breakup of marks for the practical will be as under:
   i. Internal Assessment — 30 Marks
   ii. Viva Voce (External Evaluation) — 20 Marks
   iii. Lab Record Program Development and Execution(External Evaluation) — 50 Marks
2. The breakup of marks for the internal assessment for theory Subjects will be as under:
   i. Average of Both Mid Semester Tests / Internal Examinations — 20 Marks
   ii. Attendance — 5 Marks
   iii. Written Assignment/Project Work etc. — 5 Marks

* Only those students who have not studied Punjabi up to matriculation can opt for Elementary Punjabi. The code for the paper is same.

** BSDB1208T: Drug Abuse: Problem, Management and Prevention is a compulsory qualifying paper as per university guidelines, the marks for this paper are not counted for the total marks for the degree.

BSDB1101T : PUNJABI COMPULSORY - I

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BSDB1101T : PUNJABI COMPULSORY (Mudla Gyan) - I

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BSDB1102T : **FUNDAMENTALS OF COMPUTER AND SOFTWARE DEVELOPMENT**

Max Marks: 70 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65 Hrs.**

Course Objectives

- Aware students about basic of computer and its evolution.
- Provide knowledge of different units of computer like processing unit, IO unit, and storage unit.
- Applications of IT.
- Advanced trends in IT.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of fundamentals of computers so as to apply it in real life
- problems.
- Develop an in depth knowledge of various motivational theories.
- Develop skills to get employment in I.T. field

Instructions for the paper setter

The question paper will consist of three sections, Sections A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus. Each question will carry 12 marks, which may be segregated into sub-parts. Section C will be compulsory with 11 short answer type questions of 02 marks each, which will cover the entire syllabus.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Introduction to Computer: Block diagram of a Computer, Characteristics of computers andGenerations of computers.

Software and Hardware: Types of Software and Hardware.

Input/output Devices, Memories: Main Memories - RAM, ROM and Secondary StorageDevices - Hard Disk, Compact Disk, DVD, and Portable devices.

Computer Languages: Machine language, assembly language, high level language, 4GL,

Operating System : Introduction to windows, Linux, MAC., Software Installation, Driver Installation, Working with Control Panel, Window 7 installation.

Applications of Information Technology and Trends: IT in Business and Industry, IT inEducation & training, IT in Science and Technology, IT and Entertainment, Current Trends in IT Application - AI, Virtual Reports, voice recognition, Robots, Multimedia Technology.

SECTION B

Number System: Non-positional and positional number systems, Base conversion, Concept of Bit and Byte, binary, decimal, hexadecimal, and octal systems, conversion from one system to the other.

Computer Network: Network types, network topologies.

Understanding Basics of Software Development: Basic Requirements for SoftwareDevelopment. Describing Software Quality Attributes and the problems associated with software and software

Development. Professional issues related to Software Development. Understanding Core Programming, Understanding Object oriented Programming. Opportunities and Challenges facing softwareengineering

Reference Books:

1 P.K. Sinha and P. Sinha, Foundations of Computing, BPB.
2 Chetan Srivastva, Fundamentals of Information Technology, Kalyani Publishers.
3 Roger S.Pressman, Tata Mcgraw Hill.
4 Ian Somerville, Software Engineering, Pearson education.
5 Rajib Mall, Fundamental of Software Engineering, PHI.

BSDB1103T : **COMPUTER PROGRAMMING USING "C"**

Max Marks: 70 **Max.Time: 3 Hrs.**

Min Pass Marks: 35% **Lectures to be delivered: 55-65 Hrs**

Course Objective

- To give fundamental knowledge of Programming Languages
- To explain the basic concepts related to ,Algorithms, Flowchart, Compiler, Linking and Loading
- To make the learners acquainted with the use different operators.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of programming theories so as to apply it in real life problems.
- Develop an in depth knowledge of various techniques of programs.
- Develop skills to get employment in the field of computer field.

Instructions for the paper setter

The question paper will consist of three sections, Sections A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus. Each question will carry 12 marks, which may be segregated into sub-parts. Section C will be compulsory with 11 short answer type questions of 02 marks each, which will cover the entire syllabus.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Fundamental of C programming: Overview, Basic Structure of C Program, ProgramDebugging, Compilation and Execution, Rules of Character set, Identifiers and keywords, Constants, Variables, Data types.

Header Files: stdio.h, math.h, string.h, process.h etc.

I/O functions: Formatted and Unformatted console I/O functions.

Operators: Need, Types, Precedence and Associativity. Type conversion (Implicit and Explicitconversion).

Control Structure: Decision making statements (if, if else, switch), Loop control statements(for, while and do-while), jumping statements (break, continue, goto), nested control structures.

Arrays: One dimensional and multi dimensional arrays, Array declaration, initialization,reading values into an array, displaying array contents.

Strings: input/output of strings, string handling functions (strlen, strcpy, strcmp, strcat &strrev).

SECTION B

Functions: Uses of functions, various categories of functions, Library functions and userdefined functions, prototype, definition and call, formal and actual arguments, local and global variables, methods of parameter passing to functions, recursion.

Storage Classes: automatic, external, static and register variables.

Structures and unions: using structures and unions, comparison of structure with arrays andunion.

Pointers: pointer data type, pointer declaration, initialization, accessing values using pointers, pointers and arrays.

Reference Books:

1. E. Balagurusamy, Programming in C, Tata McGraw-Hill.
2. Let Us C, Yashvant P Kanetkar, BPB.
3. Kernighan and Ritchie, The C Programming Language, PHI.
4. Byron Gottfried, Programming in C, Tata McGraw-Hill.
5. Kamathane, Programming in C, Oxford University Press

BSDB1104T : **WEB DESIGNING USING HTML AND DHTML**

Max Marks: 70 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65 Hrs**

Course Objective

- To give fundamental knowledge Internet Technology and Protocol .
- To explain the basic concepts of Tools and tag used in HTML.
- To make the learners acquainted with the use of different theories related to A.S.P.

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of Internet Technology and Protocol.
- Develop an in depth knowledge of Creating and saving HTML document techniques.
- Develop skills to get employment in ASP,Networking and HTML Field.

Instructions for the paper setter

The question paper will consist of three sections, Sections A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus. Each question will carry 12 marks, which may be segregated into sub-parts. Section C will be compulsory with 11 short answer type questions of 02 marks each, which will cover the entire syllabus.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Introduction to HTML: Basic HTML concepts, an overview of HTML markup.
What is good Web design, the process of Web publishing, implementation, the phases of Web site development, HTML's role in the Web, and issues facing HTML and the Web. **HTML overview:** the structure of HTML documents; document types, the <HTML>element; the <HEAD> element, the <BODY> element.

Links and Addressing: Linking basics, what are URLs; linking in HTML, anchor attributes,images and anchors, image maps; semantic linking with the <LINK> element, meta-information.

HTML and Images: The role of images on the Web, image preliminaries; imagedownloading issues, obtaining images, HTML image basics, images as buttons; and image maps.

Introduction to Layout: Backgrounds, Colors, and Text, Design requirements, HTMLapproach to Web design, fonts, colors in HTML, document-wide color attributes for <BODY>, and background images. Introduction to lists, tables, frames.

SECTION B

Basic Interactivity and HTML: Forms form preliminaries; the <FORM> element; formcontrols.

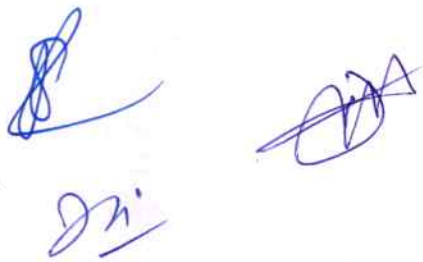
Dynamic HTML (DHTML): dynamic HTML and document object model, HTML andscripting access, rollover buttons, moving objects with DHTML, and ramifications of DHTML.

Style Sheets: style sheets basics, style sheet example, style sheet properties, positioning withstyle sheets.

Client Side Scripting: Java script: Introduction, documents, forms, statements, functions,objects, Event and event handling, Browsers and the DOM, JQuery: Syntax, Selectors, Events and AJAX methods.

Reference Books:

1. Deitel, Deitel and Nieto: Internet & WWW. How to program, Pearson Education.
2. Thomas A. Powell, HTML: The Complete Reference, Osborne/McGraw-Hill
3. E Stephen Mack, Janan Platt : HTML 4.0 , No Experience Required, BPB Publications.
4. "HTML Complete" by Sybex, BPB Publications, 2001.
5. Bayross, Web Enabled Commercial Applications Development Using HTML, DHTML, Java Script, Perl CGI, BPB Publication
6. Scott Mitchell, Designing Active Server Pages, O Relly, 2000.



BSDB1105P : **PROJECT– I (ONE MONTH TRAINING BASED ON OFFICE AUTOMATION TOOLS)**

Max Marks: 70 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

Note : Student Have to Submit Project Report on Office Automation Tools

Word: Design, create and modify a range of business documents, Displaying DifferentViews of a Document, Creating and Saving a Document, Selecting, Modifying, Finding and Replace Text, Align Text Using Tabs, Display Text as List Items. Apply Borders and Shading, Preview a document, and adjust its margins and orientation, Insert & Format a Table, Convert Text to a Table, Check Spelling and Grammar, Use the Thesaurus, Print with default or custom settings, Managing Lists – Sort, Renumber, Customize a List, Apply a Page Border and Colour, Sorting Table Data, Control Cell Layout, Perform Calculations in a Table, Creating Customized Formats with Styles and Themes. Create or Modify a Text Style, Create a Custom List or Table Style. Modifying Pictures & Picture Appearance Settings, Wrap Text around a Picture, Insert and Format Screenshots in a Document, Add WordArt , Use the Mail Merge Feature including Envelopes and Labels.

Excel: Construct a spreadsheet and populating Cell Data, Formatting Cells - SearchWorksheet Data, Changing Fonts, Modify Rows and Columns, Managing Worksheets and Workbooks, Applying Formulas and Functions, Inserting Currency Symbols, Merging cells, Spell Check a Worksheet, Add Borders and Color to Cells, Printing options to output a chart, Modify the Layout of a Paragraph – Tabs, Headers, Footers, Apply Styles & Manage Formatting, Document Templates, Insert contents, page and section breaks, Apply Character Formatting.

Clip Art , Symbols, Illustrations, Set Page Breaks, Page Layout Options, Manage Workbook Views, Apply Cell and Range Names, Auto Sum in Cells, Calculate Data Across Worksheets, Sort or Filter Worksheet or Table Data, Create, Modify and Format Charts, Create, modify and format spreadsheets using the full range of the software formatting, features including conditional formatting for example Hide /unhide/freeze rows and columns.

PowerPoint: Salient features of POWER POINT, Starting ,Saving and quittingpresentation,. various components and elements of PowerPoint Package. Insert Clip Art and Graphs. Adding Multimedia Effects to the slide. Formatting and Editing Presentations. Adding Animation and Transition effects to the presentations.

Reference Books

1. Microsoft Office Word by Torben Lage Frandsen
2. Word 2010 Introduction by Stephen
3. Word 2010 Advanced by Stephen Moffat

BSDB1106L : **SOFTWARE LAB – I**
(Based on BSDB1103T and BSDB1104T)

Max Marks: 70 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

This laboratory course will comprise as exercises to supplement what is learnt under paper BSDB1103T and BSDB1104T

Students are required to develop the following programs with internal documentation:

1 **Assignments on Data types, Operators, Control Structure (if else, while, for, Do-while), jumping statements in C .**
   i. Write a program to print the size of all the data types supported by C.
   ii. Write a program to check whether the given number is a even number or not.
   iii. Write a program to accept three numbers and find the largest among them.
   iv. Write a program to count the different vowels in a line of text using switch.
   v. Write a program to accept two numbers and perform various arithmetic operations (+, -, *, /) based on the symbol entered.
   vi. Write a program to find factorial of a number.
   vii. Write a program to print all prime numbers between any 2 given limits.
   viii. Write a program to print all the Armstrong numbers between any 2 given limits.
   ix. Write a program to demonstrate the use of break and continue statements.

2 **Assignment on Arrays(one and two dimensional) and strings (string handling functions)**
   i. Write a program to find largest element in an array.
   ii. Write a program to search an element in an array.
   iii. Write a program to find sum and average of numbers stored in an array.
   iv. Write a program to check whether a string is a Palindrome.
   v. Write a program to perform matrix addition.
   vi. Write a program to perform matrix multiplication.
   vii. Write a program to demonstrate string handling functions.

3 **Assignment on Pointers and Array of Pointers**
   i. Write a function to swap two numbers using pointers.
   ii. Write a program to access an array of integers using pointers.

4 **Assignment on Functions , Recursion and Storage Classes**
   i. Write a program to demonstrate the methods of argument passing.
   ii. Write a program to find the roots of a quadratic equation using function.
   iii. Write a recursive program to find the factorial of a number.
   iv. Write a recursive program to find the nth Fibonacci number.
   v. Write a program to show the significance of different storage classes.

5 **Assignment on Structures and Unions**
   i. Write a program to create an employee structure and display the same.
   ii. Write a program to create a student database storing the roll no, name, class etc and sort byname.

COMMON SYLLABUS WILL BE AS PER UG (BOARD OF STUDIES) IN FACULTY OF LANGUAGE (PUNJABI) PUNJABI UNIVERSITY, PATIALA

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BSDB1201T **(B) : Elementary Punjaby** ਭਾਗ-ਪਹਿਲਾ

COMMON SYLLABUS WILL BE AS PER UG (BOARD OF STUDIES) IN FACULTY OF LANGUAGE (PUNJABI) PUNJABI UNIVERSITY, PATIALA

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BSDB1202T : **FUNDAMENTALS OF DBMS**

Max Marks: 70 **Maximum Time: 3 Hrs. Min Pass Marks: 35%** **Lectures to be delivered: 55-65 Hrs**

Course Objective

- To give fundamental knowledge database and management system.
- To explain the basic concepts of architecture of database.
- To make the learners acquainted with the use of data management issues .

Learning Outcome

On the successful completion of the course, students will be able to;

- Have a clear understanding of dbms and normalization.
- Develop an in depth knowledge of various R.D.B.M.S and SQL Theories.
- Develop skills to get employment in DATABASE Field

Instructions for the paper setter

The question paper will consist of three sections, Sections A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus. Each question will carry 12 marks, which may be segregated into sub-parts. Section C will be compulsory with 11 short answer type questions of 02 marks each, which will cover the entire syllabus.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Introduction to DBMS: Definition of Database, Components of DBMS Environment,Database Schema and Instance. Three Level architecture of DBMS, Mapping between different levels, Data Independence.

Database languages: DDL, DML, DCL.

Keys : Super, candidate, primary, unique, foreign, composite, alternate

E-R model: Definition, Entity and Relationship, cardinality of a relationship, E-R DiagramNotations, Modeling using E-R Diagrams, Aggregation, Generalization, Specialization, Transforming E-R Model into Physical database Design, merits and demerits of E-R Modeling.

Record Based Logical Models: Hierarchical Model - Operations, Implementation,Advantages and Disadvantages. Network Model - Operations, Implementation, Advantages and Disadvantages, Relational Model - Operations, Implementation, Advantages and Disadvantages. Comparison between Hierarchical, Network and Relational Model

SECTION B

Normalization: Definition, Need, Process: Determinant, Functional Dependency, FullFunctional Dependency, Partial Dependency, Transitive dependency, Multivalued Dependency, Join Dependency, Types of Normal Forms, Merits and Demerits of Normalization.

Transaction & Concurrency Control: Concept of transaction, ACID properties,Serializibility, States of transaction, Concurrency Control – Locking techniques, time-stamp based protocols.

Database Security: Security requirements, database integrity, Granting & revokingprivileges.

Reference Books:

1. JD Ullman, Garcia Molina, Database System: The Complete Book, Pearson Education.
2. Ramez Elmasri, Fundamentals of Database Systems, Pearson Education.
3. C.J Date, An Introduction to Database System, Pearson Education.
4. Parteek Bhatia, Database Management System.
5. Henry F. Korth, Database System Concepts, Tata McGraw-Hill.

BSDB1203T : **FUNDAMENTALS OF WINDOWS AND SERVER ADM INISTRATION**

Max Marks: 70 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65 Hrs**

Course Objectives:

1. To learn and understand basic concepts of Windows Programming.
2. To learn basic of event handling in Windows.
3. To understand and work on desktop application development.
4. To expose students to current applications of Windows

Learning Outcome:

1. Review the fundamental concepts of Windows Programming
2. Evaluate the logic of different programming concepts.
3. Evaluate the techniques of application development in windows environment.
4. To evaluate different techniques to develop windows applications.

Instructions for the paper setter

The question paper will consist of three sections, Sections A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus. Each question will carry 12 marks, which may be segregated into sub-parts. Section C will be compulsory with 11 short answer type questions of 02 marks each, which will cover the entire syllabus.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Understanding Windows Programming Basics: Identify Windows application types,Implement user interface design.

Creating Windows Forms Applications: Create and handle events, Understand WindowsForms inheritance, understand how to create new controls and extend existing controls, Validate and implement user input, Debug a Windows-based application.

Creating Windows Services Applications: Create a Windows Services application, Installa Windows Services application.

Accessing Data in a Windows Forms Application: Understand data access methods for aWindows Application, Understand data bound controls.

Deploying a Windows Application: Understand windows application deployment methods,integrating data.

Windows 10: Installing, upgrading and migrating to Window, Deploying Windows,Configuring disk and device drivers, Configuring, file access and printers on Window client.

SECTION B

Network basics: Type of Networks, Topologies, Transmission media, Install UTP(Straight,Cross, Rollover Cables), IP Addressing, Subneting, OSI Model, TCP/IP Model, Wireless Network, Network Devices.

Installation: Installation Server, Drivers, Working with windows server Devices,Troubleshooting

Devices & Drivers, Managing system updates.

Working With Disk Storage: Type of Disk Storage, Type of volumes, Implementing faulttolerance, Use disk management tools, Disk Quota, Troubleshooting disk management, Shadow copy.

Domain Controller: Install Active Directory, Manage Active Directory Component,Working with OU Structure, Working with Domain User account, Working with Domain Groups, Troubleshooting Active Directory.

Domain Name Services (DNS): Define Name resolution, Install DNS, Configure DNSClient, Manage and Troubleshoot DNS.

Dynamic Host Configuration Protocol: Configure DNS Server, Working With SuperScope, Configure DHCP Client, Manage and Troubleshoot DHCP Server.

Backup and Restore: Requirement for Backup and Recovery AD, Issue for AD Backup andRecovery, Steps for Backup and Recovery AD.

Reference Books:

1. Mark Minasi and John Paul Mueller Mastering, Window Server 2008
2. Danielle Ruest, Microsoft Windows Server 2008 "The Complete Reference", hyperlink "http://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor:%22Nelson +Ruest%22"
3. MTA Windows of Fundamentals (Microsoft Official Academic Course) [Paperback] Microsoft Official Academic Course.
4. Windows 2010 Configuration : Microsoft Certified Technology Specialist Exam 70-680 [With Access Code] (Microsoft Official Academic Course) [Paperback] Craig Zacker (Author)
5. Window Server Administration fundamentals : Microsoft Official Academic Course

BSDB1204T : **DATA STRUCTURES**

Max Marks: 70 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35% **Lectures to be delivered: 55-65 Hrs**

Course Objective

Data Structure is considered as one of the fundamental paper towards a more comprehensive understanding of programming and application development. Student is expected to work towards a sound theoretical understanding of Data Structures and also compliment the same with hands on implementing experience.

Objectives of the course are:

- To be able to practically implement the data structures like stack, queue, array etc.
- To understand and implement different searching and sorting

Learning Outcome

- Understand the need for Data Structures when building Applications.
- Appreciate the need for optimized algorithm.
- Able to walk through insert and delete for different data techniques.
- Improve programming skills.

Instructions for the paper setter

The question paper will consist of three sections, Sections A, B & C. Sections A & B will have four questions each from the respective sections of the syllabus. Each question will carry 12 marks, which may be segregated into sub-parts. Section C will be compulsory with 11 short answer type questions of 02 marks each, which will cover the entire syllabus.

Instructions for the candidates

Candidates are required to attempt two questions each from section A and B and the entire section C.

SECTION A

Basic concepts and notations: Types of data structures, Data structure operations, Mathematical notations and functions, Algorithmic complexity, Big 'O' notation, Time and space trade off.

Arrays: Linear array, representation of array in memory, traversing linear array, insertion and deletion in an array, Two-dimensional array, row major and column major orders, sparse matrix.

Stacks: Representation of stacks in memory (linked and sequential), operations on stacks, Applications of stacks: string reversal, parentheses matching.

Queues: Representation of queues in memory (linked and sequential), operations on queues, insertion in rear, deletion from front.

SECTION B

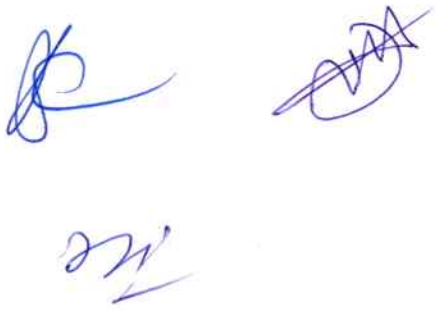
Linked list: Representation of linked list using static and dynamic data structures, insertion and deletion of a node from linked list, searching in link list, searching in sorted link list.

Trees: Definition and basic concepts, linked representation and representation in contiguous storage, binary tree, binary tree traversal, Binary search tree, searching, insertion and deletion in binary search tree.

Searching and sorting algorithms: Linear and binary search, bubble sort, insertion sort, selection sort, quick sort, merge sort.

Reference Books:

1. Seymour Lipschutz, Theory and Practice of Data Structures, McGraw-Hill.
2. Vishal Goyal, Lalit Goyal, Pawan Kumar, A Simplified Approach to Data Structures, Shroff Publications.
3. Y. L. Tenenbaum, and A. J. Augenstein, Data Structures using C and C++, PHI.
4. Robert Sedgewick, Algorithms in C, Pearson Education.



BSDB1205L : **SOFTWARE LAB – II**
(Based on BSDB1202T **and** BSDB1203T)

Max Marks: 70
Maximum Time: 3 Hrs. **Min Pass Marks: 35%**

This laboratory course will comprise as exercises to supplement what is learnt under paper B.VSD-122 and 123. Students are required to perform following activities with internal documentation:

1 Installation Window 2010, upgrading Windows 2010. Deploying Windows 2010.
2 Configuring disk and device drivers, Configuring file access, Install printers on Window 2010 client.
3 Configuring network connectivity and wireless network connections.
4 Install UTP(Straight, Cross, Rollover Cables), IP Addressing with LAN, Subnetting, Implement Wireless Network with LAN.
5 Installation Server 2008, Drivers, Working with windows Devices, Troubleshooting Devices & Drivers, Managing system updates.
6 Implementing fault tolerance, Use disk management tools, Disk Quota, Troubleshooting disk management, Shadow copy.
7 Install Active Directory, Manage Active Directory Component, Working with OU Structure, Working with Domain User account, Working with Domain Groups, Troubleshooting Active Directory.
8 Configure Auditing, Enable Auditing, Working with Security logs, Install terminal services, Configure terminal services, Working with Remote desktop, Working with telnet, Working with SSH, Manage terminal Services, Network Traffic Monitoring.
9 Install DNS, Configure DNS Client, Manage and Troubleshoot DNS.
10 Configure DNS Server, Working With Super Scope, Configure DHCP Client, Manage and Troubleshoot DHCP Server.
11 Configure VPN, Manage and Troubleshoot on VPN.
12 Implement and Manage Group Policy, Creating GPO's, Linking GPO's to Active Directory,

BSDB1206L : **SOFTWARE LAB – III**
(Based on BSDB1204T)

Max Marks: 70 **Maximum Time: 3 Hrs.**
Min Pass Marks: 35%

This laboratory course will comprise as exercises to supplement what is learnt under paper BSDB1204T. Students are required to develop the following programs in C with internal documentation:

1 Program to insert an element from an array.
2 Program to delete an element from an array.
3 Program to store an array using sparse representation.
4 Program to apply various operations on stack.
5 Program for parenthesis matching using stack.
6 Program for String reversal using stack.
7 Program to insert and delete nodes in a queue.
8 Program to insert and delete nodes in a linked list.
9 Program to search a node in a linked list.
10 Program to insert or delete node in a binary tree.
11 Program to traverse binary tree.
12 Program for implementing linear search.
13 Program for implementing binary search.
14 Program for implementing Bubble sort.
15 Program for implementing Selection sort.
16 Program for implementing Insertion sort.
17 Program for implementing Quick sort.
18 Program for implementing Merge sort.

BSDB1207T : **Drug Abuse : Problem, Management and Prevention****

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