

**OUTLINES OF TESTS,
SYLLABI AND COURSES OF READING**

FOR

B.Voc. (SOFTWARE DEVELOPMENT)

**First Year
(FIRST AND SECOND SEMESTER)**

**FOR
2020-21, 2021-22 and 2022-23 Sessions**



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

B. VOC. (Software Development) First Year(1st Semester)
(2020-21, 2021-22 and 2022-23 Sessions)

Code	Title of Paper	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
B.VSD-111	Communication Skills	4	60	40	100	3
B.VSD-112	Fundamentals of Computer and Software Development	4	60	40	100	3
B.VSD-113	Computer Programming using C	4.5	60	40	100	3
B.VSD-114	Web Designing using HTML and DHTML	4.5	60	40	100	3
B.VSD-115	Project – I	4.5	50	50	100	3
B.VSD-116	Software Lab – I (Based on B.VSD-113 & B.VSD-114)	4.5	50	50	100	3
B.VSD-117	Language Lab-I	4	50	50	100	3
Total		30	390	310	700	

1. The breakup of marks for the practical will be as under:
 - i. Internal Assessment 50 Marks
 - ii. Viva Voce (External Evaluation) 20 Marks
 - iii. Lab Record Program Development and Execution(External Evaluation) 30 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 16 Marks
 - ii. Attendance 8 Marks
 - iii. Written Assignment/Project Work etc. 16Marks

OUTLINE OF PAPERS AND TESTS
FOR
B. VOC. (Software Development) First Year (2nd Semester)
(2020-21, 2021-22 and 2022-23 Sessions)

Code	Title of Paper	Credits	University Examination	Internal Assessment	Max. Marks	Exam. Duration Hours
B.VSD-121	Functional Punjabi / Elementary Punjabi*	4	60	40	100	3
B.VSD-122	Fundamentals of DBMS	4	60	40	100	3
B.VSD-123	Fundamentals of Windows and Server Administration	4.5	60	40	100	3
B.VSD-124	Data Structure	4.5	60	40	100	3
B.VSD-125	Software Lab-II	4.5	50	50	100	3
B.VSD-126	Software Lab – III	4.5	50	50	100	3
B.VSD-127	Language Lab-II	4	50	50	100	3
B.VSD-128	Drug Abuse : Problem, Management and Prevention**	4	70	30	100	3
			390	310	700	

1. The breakup of marks for the practical will be as under:

- i. Internal Assessment 50 Marks
- ii. Viva Voce (External Evaluation) 20 Marks
- iii. Lab Record Program Development and Execution(External Evaluation) 30 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 16 Marks
- ii. Attendance 8 Marks
- iii. Written Assignment/Project Work etc. 16 Marks

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

** B. VSD-128: 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.

B.VSD-111 COMMUNICATION SKILLS

Max. Marks : 60 Marks

Max.Time : 3hrs

Min. Pass Marks : 35%

Lectures to be delivered: 55-65 Hrs

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

Instructions for the candidates

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

SECTION A

Communication: Meaning, Importance, and Process, Objectives of Communication, Effective Communication, Means/ Media and Types of Communication, Channels of Communication, Barriers to Communication, Voice Training, Importance of Feedback. Interview, Report Writing, Speeches and Presentations, Documentation, Preparation of Extempore speech, Group Discussion, Debates, Declamation; Stage Confidence.

Business Correspondence: Definition, Importance Business letters: Essential features, Parts and Layout, Types: Purchase order letter, Enquiry Letter, Quotation Letter, Acceptance Letter, Refusal Letter, Follow Up Letter and Cancellation of order letter.

SECTION B

Personality Development: Types of personality, Dynamics of Personality, Personality Traits, Influences on Personality, Personality Analysis through body language and Individual habits, Physical Aspects of personality, Emotional Stability, Memory Training, Mind and mental development, Mental Blocks, Manners and Art of Living.

Reference Books:

1. The Written Word by Vandan R.Singh
2. Business Communication by M.K. Sehgal, Vandana Khetarpal
3. A Course in Communication Skills by Duttetal
4. Succeeding through Communication by SubhashJagota
5. Personality Development and Soft Skills by Prof. Achhru Singh & Dr. Dharminder Singh Ubha

B.VSD—112 FUNDAMENTALS OF COMPUTER AND SOFTWARE DEVELOPMENT

Max Marks: 60

Min Pass Marks: 35%

Maximum Time: 3 Hrs.

Lectures to be delivered: 55-65 Hrs.

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

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 and Generations of computers.

Software and Hardware: Types of Software and Hardware.

Input/output Devices, Memories: Main Memories - RAM, ROM and Secondary Storage Devices - 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 in Education & 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 Software Development. 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 software engineering

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.

B.VSD—113 COMPUTER PROGRAMMING USING "C"

Max Marks: 60

Min Pass Marks: 35%

Max.Time: 3 Hrs.

Lectures to be delivered: 55-65 Hrs

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

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

B.VSD-114 WEB DESIGNING USING HTML AND DHTML

Max Marks: 60

Min Pass Marks: 35%

Maximum Time: 3 Hrs.

Lectures to be delivered: 55-65 Hrs

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

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; image downloading issues, obtaining images, HTML image basics, images as buttons; and image maps.

Introduction to Layout: Backgrounds, Colors, and Text, Design requirements, HTML approach 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; form controls.

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

Style Sheets: style sheets basics, style sheet example, style sheet properties, positioning with style 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'Reilly, 2000.

B.VSD-115 PROJECT– I (ONE MONTH TRAINING BASED ON MS-OFFICE)

Max Marks: 50

Maximum Time: 3 Hrs.

Min Pass Marks: 35%

Note : Student Have to Submit Project Report on MS- Office

MS-word: Design, create and modify a range of business documents, Displaying Different Views 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, Renummer, 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.

MS-Excel: Construct a spreadsheet and populating Cell Data, Formatting Cells - Search Worksheet 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.

MS-PowerPoint: Salient features of POWER POINT, Starting ,Saving and quitting presentation, 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

B.VSD -116 SOFTWARE LAB – I
(Based on B. VSD-113 and B.VSD-114)

Max Marks: 50
Min Pass Marks: 35%

Maximum Time: 3 Hrs.

This laboratory course will comprise as exercises to supplement what is learnt under paper BVSD-113 and BVSD-114.

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 by name.

B.VSD-117 LANGUAGE LAB-1 (Based on B.VSD 111)

Max Marks: 50

Min Pass Marks: 35%

Maximum Time: 3 Hrs.

Practical Units: 50 Marks

1. Reading Skills (15 Marks)

- i. Comprehension of various passages with special emphasis on framing questions and answers, word-meaning.
- ii. Newspaper reading

2. Speaking Skills (15 Marks)

- i. Speech Organs, Basic phonetic symbols and correct pronunciation.
- ii. Teaching conversations skills with special emphasis on grammar and vocabulary through the use of audio-visual aids

3. Listening and Writing Skills (10 Marks)

- i. The students should be made to view English movies with the aim of comprehension. The students should be able to answer the questions at the end of each session.
- ii. Creative writing

4. Personality Development (10 Marks)

B.VSD-121- A: FUNCTIONAL PUNJABI

plrlAf 6 pRql h&qw

kul AMk: 100

ilKql pRliKAw: 60

ieMtrnl AsYsmYNt: 40

islybs qy pwT pusqkW

1. pMjwbl dl pwT–pusqk , sMpw. fw. bldyv isMG clmw.

AMk-vMf qy pypr-sYtr lel hdwieqW

1. Bwg pihlw ivcoN cwr pRSn pwey jwx Aqy do krn lel ikhw jwvy[hr iek pRSn nON (9) nMbr dw hovygw[$2 \times 9 = 18$

(iksy kivqw dw ivSw- vsqU Aqy pRsMg-sihq ivAwikAw bwry hl pRSn pu`Cy jwx[)

2. Bwg dUjw ivcoN cwr (4) pRSn pwey jwx Aqy do (2) krn lel ikhw jwvy[hr iek pRSn nON nMbr dw hovygw[

$$2 \times 9 = 18$$

(pusqk dy Bwg dUjw Aqy qljw ivcoN kul cwr pRSn pu`Cy jwx[)

3. bwrW (12) Coty pRSn pwey jwx[hr pRSn do (2) nMbr dw hovygw[$12 \times 2 = 24$

(Coty pRSnW lel pwT-pusqk ivcly swry BwgW nMU AwDwr bxwieAw jwvy[)

ieMtrnl AsYsmYNt

1. irport / pRojYkt dy AwDwr auqy AMk 16

2. M.S.T / AMdrUnl pRliKAw (dovyN pRliKAwvW dl AOsq dy ADwr auqy) AMk 16

3. klws ivc hwzrl AMk 8

B.VSD- 121-B gzikph bklwh (w[ZYbk frnkB) Gkr^gfjbk

e[b nze L 100 (gk; nze L 35)

nzdo{Bh w[bKeD L 40

nze

pkjoh gohfynkL 60 nze

;wK L 3 xzN/

Gkr^T

(1)H r[ow[yh toDwkbk s/ b/yD^gqpzX

(T) nZyo f;ZfynkL soshptko s/ G[bkt/A nZyo.

(n) nZyo pDsoL nZyo o{g s/ b/yD d/ fB:w.

(2)H r[ow[yh nZyo s/ gzikph X[BhnK dk gqpzX

(T) ;to s/ ftnziBL torheoB d/ f;XKs s/ T[ukoB.

(n) ;to ;{ue nZyoK s/ X[BhnK dh gSkD s/ tos'A.

(J) ftnziB ;{ue nZyoK s/ X[BhnK dh gSkD s/ tos'A.

(;) brK^wksok dh gSkD s/ tos'A.

(j) brkyoK dh gSkD.

Gkr^ n

(1)H fbgh d/ nZyoK dh tos'A d/ fB:w

(T) g{o/ s/ nZX/ nZyoK dh gSkD s/ tos'A.

(n) ;to ;{ue nZyoK dh gSkD s/ tos'A.

(J) ;to tkjeK dh gSkD s/ tos'A.

(;) wksok s/ ;to tkjeK dh ;KMh tos'A.

(j) wksok dh ftnziB ;{ueK Bkb tos'A.

(2)H gzikph Ppdktbh Bkb ikD gSkD

(T) frDsh

(n) jls/ d/ fdB

(J) wjhfbnK d/ BK

(;) ozrK d/ BK

(j) cbK^;plhnK d/ BK

(e) gP{^SgzShnK d/ BK

(y) gzikph foPsk^Bksk gqpzX dh Ppdktbh

(r) xo/b{ t;sK dh Ppdktbh

Gkr^J (;ko/ f;b/p; s/ nkXkos nkpi?efNt NkJhg gqPB.)

AMk-vMf qy pypr-sYtr lel hdwieqW

3. Bwg pihlw ivcoN cwr pRSn pwey jwx Aqy do krn lel ikhw jwvy hr iek pRSn nON (9)
nMbr dw hovygw $2 \times 9 = 18$

4. (Bwg dUjw ivcoN cwr (4) pRSn pwey jwx Aqy do (2) krn lel ikhw jwvy hr iek pRSn
nON nMbr dw hovygw
 $2 \times 9 = 18$

5. bwrW (12) Coty pRSn pwey jwx[hr pRSn do (2) nMbr dw hovygw[
 $12 \times 2 = 24$

ieMtrnl AsYsmYNt

4. irport / pRojYkt dy AwDwr auqy AMk 16
5. M.S.T / AMdrUnl pRliKAw (dovyN pRliKAww dl AOsq dy ADwr auqy)
AMk 16
6. klws ivc hwzrl AMk 8

nze tzv s/ g/go ;?ZNo bJh jdkfJsK

- 1H ftfdnkoEh gfjbh tko r[ow[yh fbgh f;Zy oj/ jB. j' ;edk j? ftfdnkoEh gzikph GkPk s'A nBikD
j'D. ;' gqPBK dk gZXo ftfdnkoEhnK dh ;hwk B{z fXnKB ftZu oZy e/ fBPus ehsk ikt/.
- 2H ;ko/ GkrK ftZu'A gqPB g[ZS/ ikD.
- 3H ;ob s/ ;gPN gqPB g[ZS/ ikD.
- 4H toDkswe gqPB Bk g[ZS/ ikD.
- 5H ftfdnkoEh B{z fbgh dk p'X eotkT[D bJh X[BhnK, fbgh fuzBQK dh gSkD ns/ tos'A
;pzXh ;zy/g gqPB g[ZS/ ikD. b'V nB[;ko ftfdnkoEhnK B{z S'N iK u'D d/Dh bklwh j?.
- 6H gzikph Ppdktbh d/ ;ko/ GkrK ftZu'A gqPB g[ZS/ ikD. b'V nB[;ko u'D ns/ S'N fdZsh ikt/.

;jkfJe gkm ;wZroh

1. Hardev Bahri, Teach Yourself Punjabi, Publication Bureau, Punjabi University, Patiala, 2011.
2. Ujjal Singh Bahri and Paramjit Singh Walia, Introductory Punjabi, Publication Bureau, Punjabi University, Patiala, 2003.
3. Gurinder Singh Mann, An introduction to Punjabi : Grammar, Conversation and Literature, Publication Bureau, Punjabi University Patiala, 2011
4. www.elearnpunjabi.com
5. www.pt.learnpunjabi.org
- 6H ;hsk okw pkjoh, gzikph f;yhJ/, gpbhe/;aFB fpT{o', gzikph :{Bhtof;Nh, gfNnkbk, 2002
(fjzdh)

B.VSD-122: FUNDAMENTALS OF DBMS

Max Marks: 60
Marks: 35%

Maximum Time: 3 Hrs. Min Pass
Lectures to be delivered: 55-65 Hrs

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

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 Diagram Notations, 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, Full Functional 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, Serializability, States of transaction, Concurrency Control – Locking techniques, time-stamp based protocols.

Database Security: Security requirements, database integrity, Granting & revoking privileges.

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.

B.VSD-123 FUNDAMENTALS OF WINDOWS AND SERVER ADMINISTRATION

Max Marks: 60

Min Pass Marks: 35%

Maximum Time: 3 Hrs.

Lectures to be delivered: 55-65 Hrs

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

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 Windows Forms 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, Install a Windows Services application.

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

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

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

SECTION B

Network basics: Type of Networks, Topologies, Transmission media, Install UTP (Straight, Cross, Rollover Cables), IP Addressing, Subnetting, 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 fault tolerance, 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 DNS Client, 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 and Recovery, 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

B.VSD-124 DATA STRUCTURES

Max Marks: 60

Min Pass Marks: 35%

Maximum Time: 3 Hrs.

Lectures to be delivered: 55-65 Hrs

Instructions for the paper setter

The question paper will consist of three sections A, B and C. Each of sections A and B will have four questions from the respective sections of the syllabus and each question carry 9 marks. Section C will consist of one compulsory question having 12 parts of short-answer type covering the entire syllabus uniformly and each question will carry 2 marks.

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.

B.VSD-125 SOFTWARE LAB – II (Based on B.VSD-122 and 123)

Max Marks: 50

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,

B.VSD-126 SOFTWARE LAB – III (Based on B.VSD-124)

Max Marks: 50

Maximum Time: 3 Hrs.

Min Pass Marks: 35%

This laboratory course will comprise as exercises to supplement what is learnt under paper B.VSD-124. 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.

B.VSD-127 : LANGUAGE LAB – II (Based on B.VSD-121-A/B)

Max Marks: 50

Min Pass Marks: 35%

Maximum Time: 3 Hrs.

Akhar 2016

1. Punjabi Typing in Unicode using various keyboard layouts
2. Formatting and editing of Punjabi documents
3. Font conversion from ASCII to Unicode and reverse
4. Spell checking and grammar checking of Gurmukhi text
5. Using Punjabi-English Dictionary
6. Sorting names according to Punjabi sorting rules
7. Transliteration between Gurmukhi, Shahmukhi and Roman scripts
8. Optical Character Recognition of Gurmukhi text