

(P.G. DEPARTMENT OF COMPUTER SCIENCE)

OUTLINES OF TESTS,

SYLLABI AND COURSES OF READING

FOR

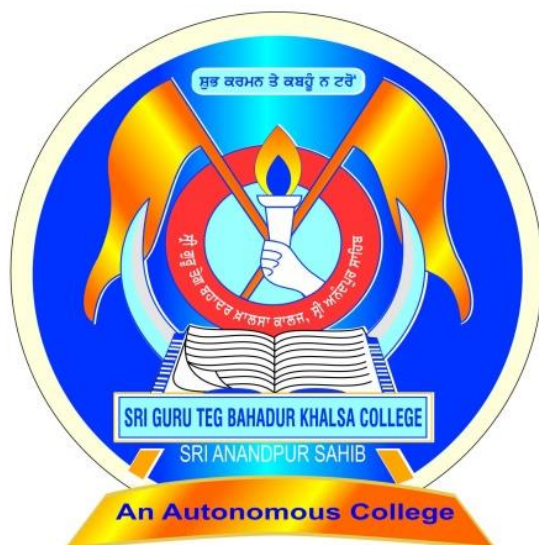
DIPLOMA IN COMPUTER APPLICATIONS (D.C.A)

(SEMESTER SYSTEM)

PART I (Semester I & II)

(2021-22 Session)

FACULTY OF COMPUTING SCIENCES



SRI GURU TEG BAHADUR KHALSA COLLEGE

Sri Anandpur Sahib

An Autonomous College

Affiliated to Punjabi University, Patiala

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SYLLABI, OUTLINES OF PAPERS AND TESTS FOR

DIPLOMA IN COMPUTER APPLICATIONS (DCA)

First Year - First Semester Examinations

For Session 2021-22

PAPER CODE	NAME OF SUBJECT	HOURS PER WEEK				EXAMINATION SCHEME MARKS				
		L	T	P	TOTAL	Internal	External	Practical	Total	Credits
DCA-111	Fundamentals of IT	4	--	--	4	30	70	--	100	4
DCA-112	Operating Systems	4	--	--	4	30	70	--	100	4
DCA-113	Workshop on Adobe Photoshop	--	--	4	4	100	--	--	100	2
DCA-114	Software Lab-I (Office Automation)	--	--	4	4	30	70	--	100	2
TOTAL		08	--	08	16	190	210	--	400	12

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

- i. Internal Assessment 30 Marks
- ii. Viva Voce (External Evaluation) 40 Marks
- iii. Practical Performance & write up (External Evaluation) 30 Marks

2. The breakup of marks for the internal assessment for theory Subjects will be as under:

- Mid semester test – I 10 Marks
- Mid semester test – II 10 Marks
- Attendance 5 Marks
- Assignment 5 Marks

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SYLLABI, OUTLINES OF PAPERS AND TESTS FOR**DIPLOMA IN COMPUTER APPLICATIONS (DCA)****First Year - Second Semester Examinations****For Session 2021-22**

PAPER CODE	NAME OF SUBJECT	HOURS PER WEEK				EXAMINATION SCHEME MARKS				
		L	T	P	TOTAL	Internal	External	Practical	Total	Credits
DCA-121	Computer Communication & Internet	4	--	--	4	30	70	--	100	4
DCA-122	RDBMS	4	--	--	4	30	70	--	100	4
DCA-123	Workshop on Corel Draw	--	--	4	4	100	--	--	100	2
DCA-124	Software Lab-II (Oracle)	--	--	4	4	30	70	--	100	2
DCA-125	Software Lab-III (Internet)	--	--	4	4	30	70	--	100	2
TOTAL		08	--	12	20	220	280	--	500	14

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

- | | |
|---|----------|
| i. Internal Assessment | 30 Marks |
| ii. Viva Voce (External Evaluation) | 40 Marks |
| iii. Practical Performance & write up (External Evaluation) | 30 Marks |

2. The breakup of marks for the internal assessment for theory Subjects will be as under:

- | | |
|------------------------|----------|
| Mid semester test – I | 10 Marks |
| Mid semester test – II | 10 Marks |
| Attendance | 5 Marks |
| Assignment | 5 Marks |

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FUNDAMENTALS OF INFORMATION TECHNOLOGY

DCA 111

4 CREDITS: 4H (L)

Time Allowed: 3 Hours

Max. Marks: 100

Number of Lectures per Week: 4

External Marks: 70

Pass Percentage: 35%

Internal Assessment: 30

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A& B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Computer Fundamentals: Block diagram of Computer, Characteristics and Types of Computers.

Input/output Devices: Keyboard & Mouse, Trackball, Joystick, Scanner (OCR, OMR, MICR) Displays-CRT, LCD, LED, Plotter, Printer-Impact & Non-Impact Printers, Speakers

Memories: Types, Units of Memory, Primary Storage-RAM, ROM, Cache, Virtual Memory. Secondary Storage -Drives – CD, DVD(R/W), Hard Disk, Pen Drive.

Languages: Machine, Assembly, High-Level, Translators (Assembler, Compiler & Interpreter), Algorithm & Flow Charts, Hardware, Software, Application Software & System Software.

Number System: Non-Positional & Positional Number Systems, Concept of Bit and Byte, binary, decimal, hexadecimal, and octal systems, Base Conversion from one system to another system, Binary Arithmetic: Addition, Subtraction and Multiplication, 1's Complement, 2's Complement, Subtraction using 1's Complement & 2's Complement.

Computer Codes: Weighted & Non-Weighted Codes, BCD, EBCDIC, ASCII, Unicode.

Section-B

Applications of IT: IT in Business and Industry, IT in Education and Training, IT in Science and Technology, IT and Entertainment.

Advanced Trends in IT: Mobile Internet, GPS, 3G, 4G, Wi-Fi, Bluetooth, Cloud Technology, Virtual LAN Technology, Firewall, e-Commerce, M-Commerce, Nanotechnology, Virtual Reality, BPO, KPO, Online Shopping, Social Media: YouTube, Facebook, LinkedIn, Twitter, Google+.

MS-WORD: Introduction Basic Editing, Formatting, Templates, Working with Graphics and

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Pictures, Tables, Desktop Publishing, Mail Merge, Proofing, Printing, and Publishing, Comparing, Merging, and Protecting Documents.

MS-POWERPOINT: Introduction, Using Themes and Layouts, Inserting Text and Using WordArt, Inserting Graphics (Tables, Charts, Shapes, Clip-Art), Working with Videos, Movie-Clips, Animations, and Transitions, Sounds, Editing, Saving, Printing and Publishing Tools, Help.

MS-EXCEL: Introduction, Worksheets and Workbooks, Entering Information into MS Excel, formatting a Worksheet, Adding Elements to a Workbook, Charts, Formulas and Calculations, Statistical functions and financial functions.

References:

1. P.K. Sinha and P. Sinha, "Computer Fundamentals",BPB.
2. N. Subramanian, Introduction to Computers, Tata McGraw-Hill.
3. Edward G. Martin, "Discovering Microsoft Office 2016", Wiley Custom Learning Solutions.
4. Kate Shoup, "Teach Yourself Visually Office 2010",Visual.
5. V. Rajaraman, "Computer fundamentals",PHI.

OPERATING SYSTEMS

DCA 112

4 CREDITS: 4H (L)

Time Allowed: 3 Hours

Number of Lectures per Week: 4

Pass Percentage: 35%

Max. Marks: 100

External Marks: 70

Internal Assessment: 30

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A& B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Operating System – Definition, Need, Services, Types of operating systems: simple batch system, multi programmed batch system, time sharing system, parallel system, distributed system, real time system, personal computer system. Operating system components, operating system services, system calls.

Process Management – process definition, process state, process scheduling, operations on processes, Basic concepts of thread, Difference between process and thread.

CPU Scheduling – Basic concepts, scheduling criteria, scheduling algorithms – FCFS, SJF, Round Robin and Multilevel queue scheduling.

SECTION-B

Deadlocks – Characteristics of deadlocks, methods for handling deadlocks, deadlock prevention, deadlock avoidance

Memory Management – Logical versus Physical address space, swapping, contiguous allocation, Paging, Concept of Virtual memory, Implementation by Demand Paging, Page replacement algorithms – FIFO, Optimal, LRU, Concept of thrashing .

File Management – Allocation methods: contiguous allocation, linked allocation and indexed allocation;

Device Management – Disk Scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK.

References:

1. Abraham Silberschatz, Peter B. Galvin, Operating Sytem Concepts, Addison –Wesley Publishing Co. Engineering, Third Edition 2005 ,PankajJalote, Narosa Publications. 5th Edition.

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WORKSHOP ON ADOBE PHOTOSHOP

DCA 113

2 CREDITS: 4H (P)

Time Allowed: 3 Hours

Max. Marks: 100

Number of Practicals per Week: 4

Internal Evaluation: 100

Pass Percentage: 35%

Section A

Introduction to Photoshop: Basics of Adobe Photoshop. Understanding pixels & resolution. Exploring menus, panels and toolbox. Creating new image files and opening existing files in Photoshop. Understanding and handling different image file formats, changing the resolution, color, greyscales and size of the images. Zooming & panning an image. Working with multiple images, rulers, guides & grids. Creating multicolor images and using brushes, adjusting color using the panel. Cropping, rotating, overlapping and super imposing photos on a page. Undoing Steps with History

Working with selections, layers and channels: Understanding selection tools, refining the selection and edges. Understanding layers, creating, selecting, editing, locking and grouping layers. Layer styles, consolidating layers. Manipulating layer mask. Understanding color channels, working with channels panel.

Working with filters: Basics of Filters, constructive filters, blur filters, destructive filters, effects filters, render filters, liquify filter and other filters required for artistic effects.

Creating images for the web: understanding web image formats, preparing and slicing images for the web use. Adding transparency to the web, previewing images in a browser.

References:

1. Adobe Photoshop CS6, Bible the comprehensive, tutorial resource – Lisa Danae Dayley, Brad Dayley – WileyIndia
2. Photoshop 7 Savvy – Steve Romaniello – BPBPublications.

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SOFTWARE LAB-II (BASED ON DCA 111)

DCA 114

2CREDITS:4H (P)

Time Allowed: 3 Hours

Number of Practicals per Week: 4

Pass Percentage: 35%

Max. Marks: 100

External Marks: 70

Internal Assessment: 30

This laboratory course will comprise of exercises to supplement what is learnt under paper BHM DCA 111: Fundamentals of Information Technology.

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COMPUTER COMMUNICATION & INTERNET

DCA 121

4 CREDITS: 4H (L)

Time Allowed: 3 Hours

Max. Marks: 100

Number of Lectures per Week: 4

External Marks: 70

Pass Percentage: 35%

Internal Assessment: 30

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A& B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Concepts: Internet, internet and Intranet differences among them

About Internet and Its Working, Business use of Internet, Services Offered by Internet, Evolution of Internet, Internet Service Provider (ISP), Windows Environment for Dial Up Networking (Connecting to internet).

Email: Basic Introduction, Advantages and Disadvantage, Structure of an E-Mail Message, Working of E-Mail (sending & receiving messages), Managing Email (creating new folders, deleting messages, forwarding messages, filtering messages), Configuration of Outlook Express.

SECTION B

Introduction to the Functionality of Web Browsers: Internet Explorer, Netscape Navigator Concept of WWW, surfing through web sites. Web Browsing (opening, viewing, saving a web page and book mark). Searching and downloading of different sites and software.

Introduction to HTML Structure of HTML, Web Page, Head and Body Sections, General structure of HTML tag, its name, attributes, starting and ending a tag, various text formatting tags in HTML, Proper nesting of Tags, Defining Image Map, Formatting information table with row and column spans, Adding images, audio and video objects, Hyper linking.

Using HTML: forms and its elements, working with HTML frames using frameset tag and frame properties.

References:

1. Thomas A.Powell, The Complete Reference HTML & CSS, Tata McGraw-Hill.
2. Khurana, R., HTML, APH Publishing

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3. Pascal Press, Internet, Pascal Press.
4. Heathcote, Internet Right From The Start, BPB Publications.

RELATIONAL DATABASE MANAGEMENT SYSTEMS

DCA 122

4 CREDITS: 4H (L)

Time Allowed: 3 Hours

Max. Marks: 100

Number of Lectures per Week: 4

External Marks: 70

Pass Percentage: 35%

Internal Assessment: 30

Instructions for the Paper Setter

The question paper will consist of three sections: A, B & C. Sections A& B will have four questions each from the respective sections of the syllabus carrying 10 marks for each question. Section C will have 10 short-answer type questions carrying at total of 30 marks, which will cover the entire syllabus uniformly.

Instructions for the Candidates

Candidates are required to attempt two questions each from the sections A & B of the question paper and the entire section C.

Section A

Introduction to RDBMS: Product and their Features, Difference between DBMS and RDBMS, Relationship among application programs, RDBMS, Basic File Operations: Opening Files, Closing Files, Reading and Writing, Seeking

File Organization: Field and Record structure in file, Record Types, Types of file organization, Sequential, Indexed, and Hashed.

Transaction Management: Transaction Concept, Properties, Transaction States, Concurrent Execution, Serializability, Conflict Serializability, View Serializability, Recoverability, Recoverable Schedule, Cascadless Schedule

Concurrency Control: Lock Based Protocol, Locks, Granting of Locks, Two Phase Locking Protocol, Timestamp Based Protocol, Timestamp, Timestamp ordering protocol, Thomas's Write Rule, Validation Based Protocol, Deadlock Handling, Deadlock Prevention, Deadlock Detection, Deadlock Recovery

Section B

Recovery System: Failure Classification, Transaction Failure, System Crash, Disk Failure, Storage Structures, Storage Types, Data Access, Recovery & Atomicity, Log based Recovery, Deferred Database Modification, Immediate Database Modification, Checkpoints, Recovery with Concurrent Transaction, Transaction Rollback, Restart Recovery, Remote Backup System

Relational Query Language: DDL, DML, DCL.

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Introduction to Oracle: Oracle as client/server architecture, getting started, creating, modifying, dropping databases. Inserting, updating, deleting data from databases, SELECT statement, Data constraints (Null values, Default values, primary, unique and foreign key concepts)

Computing expressions, renaming columns, logical operators, range searching, pattern matching, Oracle functions, grouping data from tables in SQL, manipulating dates.

Working with SQL: triggers, use of data base triggers, database triggers Vs. SQL*forms, types of triggers, how to apply database triggers, BEFORE vs. AFTER triggers, combinations, syntax for creating and dropping triggers.

References:

1. B.P. Desai, "Database management system" BPB publications, New Delhi.
2. C.J. Date, "An Introduction to Data Base Systems", Narosa Publishers
3. Jeffrey D. Ullman, "Principles of Database Systems", Galgotia Pub.
4. D. Kroenke., "Database Processing", Galgotia Publications.
5. Henry F. Korth, "Database System Concepts", McGraw Hill. Inc.
6. Naveen Prakash, "Introduction to Database Management", TMH

WORKSHOP ON COREL DRAW

DCA 123

2 CREDITS: 4H (P)

Time Allowed: 3 Hours

Max. Marks: 100

Number of Practicals per Week: 4

Internal Evaluation: 100

Pass Percentage: 35%

Section A

Introduction to Corel draw: Creating your first New Document , Exploring the user interface of Corel Draw, Device Central, working with Templates, Import, Export, Tools of Corel draw, pick tool, crop tool, text tool, freehand tool, rectangular tool(circle, star, Polygon), Interactive tool, Eyedropper tool, outline tool, Fill tool, interactive Fill tool.

Working with text and lines in Corel draw, Artistic text, Formatting text, changing shape of the text, Paragraph text, Working with Lines, Fitting text to a path, Applying effects to text.

Working with shapes: Creating Rectangle and Squares, Creating Circles and Ellipse, Drawing Polygons, Creating Star, Rotating shapes, Selecting fill and outline color

Working with object: Handling Objects in Corel draw, Positioning objects, Aligning and distributing objects, sizing and scaling objects, rotating and mirroring objects, combining and breaking objects, Grouping, Creating Graphical special effects.

Section B

Working with curves: Drawing with Freehand Tool, Drawing Closed Curves, Bezier tool, Drawing with the Artistic Media tool, Pen tool, 3-Point Curve tool, Special Effect of corel draw, Blending tool, Contouring the Object, Distorting Objects, Envelope tool, Extruding of the Object, Drop Shadow, Applying Transparency Effect.

Working with Colors and Bitmaps: Color Slider, Color viewers, Fixed Palettes, Color Palette Browser Docker, Using Color style Dockers, Converting Objects to Bitmap, 3D Effect, Art Effect, Blur Effect, Color Transformation Effect, Contour Effect, Creative Effect, Distort Effect, Noise Effect

Working with tables: Selecting, moving and navigating table components, Inserting and deleting table rows and columns, Resizing table cells, rows, and columns, formatting tables and cells, working with text in tables, Merging and splitting tables and cells, Corel Draw and Web, Saving the file as webpage, publishing your drawing as a webpage, Creating Rollover Buttons.

References:

1. Corel Draw X5 in simple steps by Kogent Learning Solutions.
2. Corel Draw X5 The Official Guide by Tata McGraw Hill written by Gary David Bouton.

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SOFTWARE LAB-II (ORACLE)

DCA 124

2 CREDITS: 4H (P)

Time Allowed: 3 Hours

Number of Practicals per Week: 4

Pass Percentage: 35%

Max. Marks: 100

External Marks: 70

Internal Assessment: 30

This laboratory course will comprise of exercises to supplement what is learnt under paper DCA-122: Relational Database Management System.

Students are required to practices writing SQL statements for:

1. Creating the Table
2. Querying the record using order by clause
3. Querying the record using group by clause
4. Querying the record using multiple conditions
5. Create Synonyms
6. Create Sequences
7. Create Views
8. Create Indexes
9. Create triggers
10. Create cursors for procedures

SOFTWARE LAB-III (INTERNET)

DCA 125
2 CREDITS: 4H (P)

Time Allowed: 3 Hours

Number of Practicals per Week: 4

Pass Percentage: 35%

Max. Marks: 100

External Marks: 70

Internal Assessment: 30

WEB BROWSERS: Surfing, Searching and Downloading through Web Browsers like Internet Explorer and Netscape Navigator. Their various options and sub options like: File, Edit, View, Go, Bookmark/Favourites, Options, and Tools etc.

EMAIL: Creating accounts on mail servers, Working of E-Mail (sending & receiving messages), Managing Email (creating new folders, deleting messages, forwarding messages, filtering messages).

HTML: Creating basic HTML pages using various HTML tags, Adding Images, Audio, Video objects, Designing HTML Forms for feedback, mail etc., working with multiple pages using

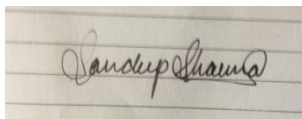
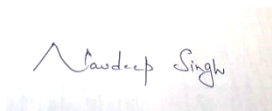
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