

DIPLOMA IN COMPUTER APPLICATIONS (DCA)

General Instructions:

1. For passing the subject examination minimum 40% marks must be separately scored in Theory

Paper, Practical Exams and Internal Evaluation in the subject.

2. For passing the semester, minimum aggregate marks must be 45% in the semester.

3. For passing in Typing Test (English and Hindi) minimum 50% of marks is required.

DCA New Syllabus

Semester -1

(Click on subject to see detail syllabus)

1DCA1	Computer Fundamentals and AI Concepts
1DCA2	PC Packages and AI Office
1DCA3(A)	Database using MySQL
OR	
1DCA3(B)	Database using MS Access
Hindi Typing	

Semester -II

2DCA1	Multimedia and Current IT Trends
2DCA2	Web Technologies and E-Commerce
2DCA3(A)	Digital Media Publishing
OR	
2DCA3(B)	Graphic Design with CorelDRAW
English Typing	

SEMESTER-I

DCA New Syllabus

1DCA1-

Computer Fundamentals & AI Concepts

UNIT I:

Computer System Concepts, Application area, advantage & disadvantage, Components of a computer system - Control unit, ALU, Input/Output, Memory, Mother Board, Generations of computers, Configurations of Computer system, Types of PCs- Desktop, Laptop, Notebook, Palmtop, Supercomputers Characteristics and area of Uses, Primary Vs Secondary Memory, RAM, ROM, EPROM, PROM. Various Storage Devices- Hard Disk Drives, Zip Drive, Blue Ray Disc, Flash drives SD/MMC Memory cards, Solid-State Drive (SSD).

UNIT II:

Input Devices: Keyboard, Mouse, Trackball, Joystick, Scanners, Digitizing tablet, Digital Camera, MICR, OCR, OMR, Light pen, Barcode & Barcode Reader, Quick Response Code (QR Code), Voice Recognition, Touch Screen. Output Devices: Monitors- Characteristics and types of Monitor, Size, Digital, Analog, Resolution, Refresh Rate, Interlaced/Non-Interlaced, Dot Pitch, Video Standard- VGA, SVGA, XGA etc. Printers and its Types Impact and Non-Impact printer, Dot Matrix, Inkjet, Laser, Plotter, 3D Printers, Sound Card and Speakers,

UNIT III:

Software and its Need, Types of Software- System Software, Application Software, System Software- Operating System definition & function, Device Drivers & Utility Programs, Introduction to DOS,

DCA New Syllabus

Windows, Linux, Mac, Android Operating System. Introduction to Programming Languages Machine, Assembly, High Level, 4GL, Their Merits and Demerits, Introduction to Assemblers, Compilers and Interpreter. Introduction to Word Processing, Spreadsheet, Presentation Graphics, Data Base Management, Desktop Publishing, Graphics & Multimedia, Business Accounting, MIS, Gaming and ERP Software etc. Computer coding system-ASCII, ISCII and Unicode, Number system of computers- Binary, Octal, Decimal, Hexadecimal their conversion.

UNIT IV:

Use of communication and IT, Communication Process, Component of communication sender, receiver, Transmission Medium & Protocol, Communication types- Simplex, Half Duplex, Full Duplex. Communication Channels- Twisted, Coaxial, Fiber Optic, Modem-Working and characteristics. Types of network- client/server and peer-to-peer networks, Types of connections Dialup, Leased Lines, ISDN, DSL, RF, Broad band uses, advantages & disadvantages. Types of Network- LAN, WAN, MAN, Internet, VPN etc., Topologies of LAN- Ring, Bus, Star, Mesh and Tree topologies- structure, uses, advantages & disadvantages. Components of LAN- Media, NIC, NOS, Network devices - Bridges, HUB, Routers, Repeater, Gateways uses, advantages & disadvantages.

UNIT V:

Introduction to AI, History, Definition, and Applications of AI, Types of AI, Definition, Scope, and Goals of AI, History and Evolution of Artificial Intelligence, Advantages and Limitations of AI. Exploring AI-powered devices (e.g., smart assistants, image recognition tools).

DCA New Syllabus

Introduction to Machine Learning and its Relationship with AI. AI in the Internet World: Search Optimization, Chatbots, Recommender Systems, Virtual Assistants, Modern AI Applications: Chatbots, Self Driving Cars, Voice Assistants. Overview of (Microsoft Copilot, Windows AI). Reference Books:

DCA New Syllabus

1DCA2

PC Packages and AI Office Tools

Detail Syllabus:

UNIT I:

Operating System (Windows): Overview of Windows Operating System, Basic operations, How to Start a computer, login, logoff, hibernate, shutdown. Personalizing Desktop-Desktop Background, Screen Saver, Themes, Setting date & time, Task bar, Files & Folders, Create, Copy, Rename, Moving & Delete Files & Folders, Create & Using Shortcuts, Recycle Bin. Accessories-MS Paint, Notepad, WordPad, Windows Media Player, Calculator, Games, Math Input Panel, Language Settings-How to set other languages on computer Using Control Panel to add, remove or configuring new or existing devices, software programs and fonts, Enhance the performance of computer- using Disk Clean-up, using Disk Defragmenter. Using Internet in Windows: Basic Operations using Internet Browser-Working with browsers, Know about WWW, URL, Search Engines, Google Maps, Online Ticket Booking, Apply for PAN Card/Passport /Aadhar Card online, Pay electricity bill and Service tax online, Downloading eBooks. Introduction to AI and its relevance in daily computing tasks, Overview of AI Productivity Tools (ChatGPT, Copilot, Gemini, Notion AI)

UNIT II:

Modern office activities and their software requirements, Introduction to Office Automation Suit, Elements of office suit & area of use. Word-processing, Spreadsheet, Presentation graphics, Database,

DCA New Syllabus

Introduction and comparison of various office suites like Apache OpenOffice, Libre Office, WPS office, Google Docs & Microsoft office. MS Word Basics: Introduction to MS Office(2013), Introduction to MS Word, Features & Area of use. Various versions of MS Office and their requirements, Working with MS Word, Menus & Commands, Ribbon, Toolbars & Buttons, Shortcut Menus, Wizards & Templates, Creating a New Document, Different Page Views and layouts, Applying various Text Enhancements- Fonts, Styles, Text Attributes, Formatting Your Text and Documents: Auto format, Paragraph and Page Formatting, Line spacing, Margins, Borders and Shading, Tabs and Indents, Text Editing using various features, Bullets, Numbering, Working with Styles, Printing & various print options, Spell Check Working with Headers and Footers. Tables: Creating a simple table, Creating a table using the Table Menu, Entering and editing text in a table, selecting in table, adding rows, changing row heights, Deleting rows, Inserting columns, Deleting columns, changing column width, conversion to and from text. Introduction to Google Docs, Smart Compose, AI Summarizer.

UNIT III:

Graphics in MS-word: Importing graphics, Clipart, insert picture, Using Clip Art, Shapes and SmartArt in documents, using drawing features, drawing objects, text in drawing. Taking and inserting Screenshots in Documents, Using WordArt and Drop Cap features in documents. Templates: Template types, using templates, exploring templates, modifying templates. Mail Merge in MS Word, Mail Merge concept, Envelops & Mailing Labels, Importing and exporting to and from various formats, Macros in MS Word: Macro introduction and their

DCA New Syllabus

use, recording macros, editing macros, running a macro. Creating Professional Reports with AI-generated Templates, Using AI tools for grammar checking and content suggestions,

UNIT IV:

MS Excel Spreadsheet Basics & features, concepts of Workbook & Worksheets, Getting started, Creating a new worksheet, Using Wizards, Various Data Types, Selecting cells, Entering and editing text, Entering and editing Numbers, Removing & Resizing of Columns & Rows, entering and editing Formulas, Referencing cells, moving cells, copying cells, sorting cell data, inserting rows, inserting columns, Inserting cells, Deleting parts of a worksheet, clearing parts of a worksheet, Different Views of Worksheets. Formatting: Cell Formatting, changing column widths and Row heights, auto format, changing font sizes and Attributes, centering text across columns, using border buttons and Commands, changing colors and shading, hiding rows and columns, Working with Data & Ranges, Column Freezing, Labels, Hiding, Splitting, merging etc. Charts in Excel: Chart parts and terminology, chart wizard, different types of charts, printing charts, deleting charts, Overview of AI-powered features in Windows (e.g., Copilot) Using AI in Excel: Data Insights, Trend Prediction, Using AI features like “Analyze Data” and ChatGPT for formula generation.

UNIT V:

MS PowerPoint: Introduction & area of use, Working with MS PowerPoint, Creating a New Presentation, Working with Presentation, Using Wizards; Slides & its different views, Inserting, Deleting and Copying of Slides; Working with Notes, Handouts,

DCA New Syllabus

Columns & Lists, Adding Graphics, shapes, screenshots, Smart Art and charts in presentation, Sounds and Movies to a Slide; Working with PowerPoint Objects, Designing & Presentation of a Slide Show, change Slide backgrounds, Change Slide Size, Using Animation and Transitions in presentation, Advanced Slide options, Manual & Automatic, Printing Presentations, Notes, Handouts with print options, Slide Master, Handout Master and Notes Master. AI Tools for Presentation Creation (Beautiful.ai, Tome, Canva AI), Generate an AI-based presentation using online tools

1DCA3(A)-

Database Using MySQL

ELECTIVE-I

UNIT I:

Introduction to database concept , Need of database, Flat Database, Database Management System, Characteristics of DBMS ,Relational Database, Entity and Referential Integrity, Database Concept of primary key, Database Application Example, Banking, Railways, School, Retail Store. Database Elements - Tables, Query, Form, Report.

UNIT II:

My SQL Database, Its Features, Installation on Windows, Making it works on Command Line, Using the Built in Database, Running and Shutting down MySql Server, Setting up MySql user account. CREATE and DROP database, Important Administrative Mysql database commands SHOW DATABASE, USE DATABASE, SHOW TABLES, SHOW COLUMN, and SHOW INDEX.

UNIT III:

Database Query Commands DDL, DML, DCL, Creating Tables Using SQL Commands, Using various Data Types, Applying constraints on Tables, Updating, Deleting MySQL Tables, Inserting Data, Updating and Deleting Data - Retrieving Data From a MySQL Database- Sorting Data Retrieved from a MySQL Database- Using

DCA New Syllabus

WHERE to Filter data. SQL Functions and Operators Control flow function, String Function, Numerical Function.

UNIT IV:

Advanced MySQL-Data Filtering- AND, OR, NOT and IN- MySQL Wildcard Filtering using LIKE- MySQL Regular Expression Searches - Joining Tables in MySQL, Applying Grouping of data by Group By, MySQL Data Aggregation Functions- MySQL Users and Security- Administering and Monitoring MySQL using the MySQL Commands.

UNIT V:

Example Applications for My Sql database- Workbench and PhpMyAdmin, Graphical user Interface of PhPMyAdmin, PhPMyAdmin Features, Installation, Use of different section of PhpMyAdmin, Managing database with PhPMyAdmin, Browse, Structure, Search, Insert, Empty, Drop, Create new tables and add data, Execute MySql query with sql tab.

1DCA3 (B)

Database Using MS Access

ELECTIVE-I

UNIT I:

Introduction to database -What is a Database, Why use a Relational Database, Overview of Database Design- Data Normalization (Determining tables, Determining Fields, Determining Relationships) Integrity Rules (Primary/Foreign Key, One-to-Many, Many-to-Many, One-to-One) Introduction to MS Access (Objects, Navigation).

UNIT II:

Tables in Database, Create a Table in MS Access- Data Types, Field Properties, Fields: names, types, properties- default values, format, caption, validation rules Data Entry, Add record delete record and edit text, Sort, find/replace, filter/ select, rearrange columns, freeze columns. Edit a Tables- copy, delete, import, modify table structure, find, replace.

UNIT III:

Working with Query, Setting up Relationships- Define relationships, add a relationship, set a rule for Referential Integrity, change the join type, delete a relationship, save relationship Queries & Filter - difference between queries and filter, filter using multiple fields AND, OR, advance filter Queries, create Query with one table, find record with select query, find duplicate record with query, find unmatched record with query, run query, save and change query.

DCA New Syllabus

UNIT IV:

Working with Forms, Introduction to Forms Types of Basic Forms: Columnar, Tabular, Datasheet, Main/Subforms, add headers and footers, add fields to form, add text to form use label option button, check box, combo box, list box Forms Wizard, Create Template.

UNIT V:

Working with Reports, Introduction to Reports, Types of Basic Reports: Single Column, Tabular Report Groups/Total, single table report, multi table report preview report print report, Creating Reports and Labels, Wizard.

SEMESTER-II

2DCA1 _____

Multimedia and Current IT Trends

UNIT I:

Multimedia Definition and concept, need of Multimedia, areas of use, multimedia elements Text, Images, Sound, Animation and Video, Multimedia Hardware and Software requirement. Making simple Multimedia with PowerPoint, Applications of multimedia in different industries Education, Entertainment, Journalism etc., Future of Multimedia, Career in Multimedia Production. Emerging multimedia trends: 3D animation, Virtual Reality (VR), Augmented Reality (AR), Immersive Media. UNIT II:

Text as a component of Multimedia, Concepts of plain & formatted text, RTF & HTML texts, Object Linking and Embedding concept, Fonts need & types, Importance of sound in Multimedia, Mono V/S Stereo Sound, Effects in Sound, Analog V/S Digital Sound, Overview of Various Sound File Formats on PC WAV, MP3. Concept of MIDI, Software for sound editing and mixing. Video and audio streaming technologies overview of YouTube, Podcasts, and Reels as digital media tools.

UNIT III:

E-governance, e-democracy, Government efforts to encourage citizen participation, PPP model, E-governance websites & services-

DCA New Syllabus

SAMADHAN online, CM Helpline, MP-Online services, mygov.in of government of India UIDI & Adhar, E-governance mobile apps like Umang, Digital Locker, Digital Library, Introduction to cybercrime, types of attacks & crime email fraud, phishing, spoofing, hacking, spyware, malware, spam mail, logic bombs, denial of service, identity theft. Digital ethics and data privacy. Role of AI and Blockchain in e-Governance and cybersecurity.

UNIT IV:

Introduction to wireless LAN, Blue tooth, WiFi, WiMax Mobile technology, 2G, 3G, 4G services, IMEI, SIM, IP Telephony, Soft phone, Voice mail, Ad-hoc & sensor networks, GIS, ISP Mobile Computing, Cellular System Cell, Mobile Switching office, Hands off, Base Station. Wearable technology and smart devices. Introduction to Internet of Things (IoT): concept, devices, applications in smart homes, health, and transport

UNIT V:

Artificial Intelligence and Expert system- Concepts of AI & Expert Systems, Merits and Demerits of Expert system, Application of Expert system and Cloud computing Introduction, types, application, services, Google drive, GoogleDoc, Google form, Machine Learning (ML) and Introduction to Generative AI tools (e.g., ChatGPT, Gemini, Copilot).

DCA New Syllabus

2DCA2-

Web Technologies & E-Commerce

UNIT I:

Introduction to Internet - Internet Evolution, World Wide Web (WWW), Advantages and Disadvantages, Internet Vs Intranet, the purpose and function of an Internet Service Provider (ISP), Connectivity - Dialup, Leased line, VSAT, URLs, Portals, Internet Services, Application, E-MAIL Basics of Sending & Receiving, Free Email services, Protocols, FTP, DNS, TCP, UDP, HTTP, IP Telnet Concept, Internet chatting- Voice chat, Text chat, Web Servers, Space on Host Server for Website, Web Portals & Web publishing concepts, Domain name registration.

UNIT II:

Applications of Internet, Basic Operations using Internet Browser- Working with browsers, View History in Browser, Search Engines, Searching information on Wikipedia, Subscribing and reading newspapers online, Typing text in the regional language- Google input tools, Using Google Maps, Online Ticket Booking, Apply for PAN Card/Passport/Aadhar Card online, Pay electricity bill and service tax online, Downloading eBooks, Using JustDial/quikr.com/getit.co.in/sulekha.com to find online services, social sites, Client server architecture & characteristics, Telnet (Remote login concepts).

UNIT III:

DCA New Syllabus

HTML- Concepts of Hypertext, Versions of HTML, Elements of HTML, HTML editors, Tags and attributes, Syntax, Head & Body Sections, Building, HTML Documents. Inserting Texts, Images, List& its type, Hyperlinks, Backgrounds and Color Controls, Table Layout and Presentation, Use of Font Size & Attributes, List Types and Its Tags, Use of Frames and Forms in, Web Pages HTML, Form and frame Design tools.

UNIT IV:

JavaScript Overview, syntax & conventions. Variables, Expressions, Branching & Looping statements, Functions, Arrays Objects, Events & Document Object Model- onClick, onMouseOver, on Submit, on Focus, on Change, onBlur, onLoad, onUnload, Alerts, Prompts & Confirms.

UNIT V:

Introduction to E-Commerce, Electronic Commerce Framework, Evolution of E-commerce, Advantages and Disadvantage of E-commerce, Introduction, E-organization, Electronic Payment Systems, Electronic Cash, Smart Cards and Credit Card Based, Risks, Online Banking, E-Banking, E-Wallet, E shopping, E-Marketing: The scope of E-Marketing, M-commerce-introduction, Potential Growth and Future, Mobile banking, Paytm, Bhim, UPI app etc.

DCA New Syllabus

2DCA3 (A)

Digital Media Publishing

UNIT I:

Introduction to Desk Top Publishing (DTP), Photocomposing Machines & DTP, Definition, Need and Area of Application. Use of DTP in Offset Printing & Web Designing, Use of Desk Top Publishing in Publications, Importance of D.T.P in Publication, Advantage of D.T.P in Publication, Page Layout & Designing in a single page production. Laser printers - Use, Types, Advantage of laser printer in publication Difference between a word processor and Publication Software, Use and importance of DTP in Publication & Newspaper Printing, Various DTP Softwares and its application area, Introduction to Offset Printing Technology, Printers, Formatting of a text: Typography, Fonts, Point Size, Spacing, Breaks, Measurements etc. DTP & Page Layout Designing Types of Printing: Lithography, Flexography, Gravure, Screen Printing, Offset Printing. Print Media & Offset Printing. Terms used in Offset Printing: Bleed, CMYK, Transparent Printouts - Bromide & Film. Halftone, Impression, Saddle Stitch, Perfect Bind, Negative & Positives for Plate were making.

UNIT II:

Introduction to Adobe Page Maker 7.0, Aldus & Adobe Page Maker, Previous and current versions of Page Maker, Page Maker as a DTP Software, Difference between a Page Maker & Word Processing Software Attribute settings: Tools, Styles, Menus, Templates, Alignments, Grids, Guides etc. Keyboard shortcuts,

DCA New Syllabus

Templates & its use Page Layouts Margins and Page Orientations with various page sizes, Text Editing and Manipulation, Magazine & News Paper Page Layouts Filters, Import and Export options, Placing of Text and Images, Auto flow and Story Editor, Different Layout views, Control Palatte, Layers & its use Tab setting, Columns & Gutters, Use of Styles, Palettes & Colors, Import & Export of files, Document Setup & Preferences. Master Pages and its use.

UNIT III:

Adobe Page Maker-Page and document setup, working with rulers, setting the unit measurement, Bullets, Column Balancing, Breaks Arrange, Fill & Stroke Options. Text Wrapping, Widows & Orphan lines, Revert Command and its use, Using Drop Caps and various style formats, Editing of Graphics and Frames. Defining Styles OLE & Embedding, Plugins, Mathematic Equation, Table Editor and its use. Polygon Setting & Rounded Corners Master Pages, Headers & Footers, Frame Options, View Menu Options, Print Setup Options. Paste Multiple & Paste Special. Managing and Printing Publications Tiles, multiple copies etc. Use of Page Maker in News paper and Magazines, Various Page Layout Designing Practical's.

UNIT IV:

Introduction to Adobe Photoshop, Photoshop Documents, Various Graphic Files and Extensions- JPG, GIF, PNG, TIF, BMP, PSD, CDR, SVG etc., Photoshop Environment Graphic Files: Vector Image and Raster Images. Definition, Features, Area of application etc., Advantages and Disadvantages Vector & Raster Graphics, Bitmap Graphics and its qualities Pixels, Application Programs to work on Vector Graphics and Raster Graphics. Color Modes and Color

DCA New Syllabus

Models: HSB, RGB, CMYK, Bitmap, Gray Scale, Duotone. Color Mode Conversion Image: Image Size and Resolution, Changing Image Size and Resolution, Getting Image from Input Devices, Creating New image in Photoshop Using File Browser, Opening and Importing Selecting Image, Adjusting Pixel, Snap command, Saving and Loading Selection, Deleting Selection.

UNIT V:

Photoshop Introduction PSD files, Screen and Work Area Interfaces: Menu Bar, Option Bar, Palette, Active Image Area, Tool Box List etc. Opening a File, Saving a File, Closing a File, Tool: Icons, Name and usage of Each tool, Setting history Option, Basic Image Manipulations, Photoshop Layers & Palettes: Use of Layers, Creating using layer, Using layer palette, Working with layered Image: Layer and Layer sets, Selecting Layers, Displaying Content of a Layer, Duplicating Layers, Changing Order of Layers, Renaming & Deleting Layers Filters: Using Filter Gallery, Filter Gallery Dialogue box, Applying and Blending Filters, Choosing various Filter Effects, Masking Tools & Effects, Using Channels. Introduction to InDesign, Interfaces, Commands & options, inserting text & images, News Paper & magazine page designing in InDesign

DCA New Syllabus

2DCA3(B)

Graphic Design with CoreIDRAW

UNIT I:

Graphics in Multimedia, Importance of Graphics in Multimedia, Vector and Raster Graphics, Image Capturing Methods Scanner, Digital Camera Etc. Various Attributes of Images - Size, Color, Bit Depth, Resolution etc, Various Image File Format BMP, DIB, EPS, PIC, and TIF Format Their Features and limitations.

UNIT II:

Video and Animation in Multimedia, Impact of Video in Multimedia, Basics of Video Analog and Digital Video, How to use video on PC, Brief note on various video standards PAL, NTSC, Different file formats and their use in Multimedia, MPEG, AVI, MJPG, Name of video editing software, Basics of Animation, Types of Animation and use of Animation, Software for Creating Animations.

UNIT III:

Introduction to CoreIDRAW, Usage and Advantages, Introduction to User Interface, Introduction to tool panel and workspaces, Introduction to various size and formats of panels and layouts, File layouts and layout properties, Objects and using color profiles.

UNIT IV:

Text tools and text properties, Creating Vector graphics by using editing tools, Importing Images and graphics in CoreIDRAW layout, Creating shapes and editing shapes, Drawing curves and editing

DCA New Syllabus

curves, Creating special text effects, Creating special object effects, using color effects.

UNIT V:

Using grid and rulers, Tracing images and graphics, working with borders and page arrangements, Using Masking effects with Text, Using Masking effects with objects.