Zed-King
GROUP OF INSTITUTIONS
ISO 9001 : 2015 Certified

EXPERT COMPUTER COURSE

DATABASE MANAGEMENT SYSTEMS

Topics Covered:

#	Topic
1	Introduction to DBMS — Concepts, Advantages, Types
2	Creating a Database
3	Creating a Table — Fields, Field Types, Data Entry
4	Table Operations — Preview, Print, Row/Column Height
5	Table Management — Close, Open, Sort, Find & Replace
6	Queries — Using Query Wizard
7	Reports — Creating, Modifying & Printing from Report Wizard
8	Forms — Creating with Wizard, Data Entry, Formatting
9	Basic Formatting of Forms and Reports
10	Quick Revision + Important MCQ Questions

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SECTION 1: INTRODUCTION TO DBMS

1.1 What is Data and Database?

Term	Definition	Example
Data	Raw, unprocessed facts and figures without context	101, Ajay, 9876543210, Kaithal
Information	Processed, organized data that has meaning	Student ID: 101, Name: Ajay, Phone: 9876543210, City: Kaithal
Database	An organized collection of related data stored systematically so it can be easily accessed, managed, and updated	Student database with records of all students
DBMS	Software that creates, manages, and controls access to a database	MS Access, MySQL, Oracle, SQL Server

1.2 What is DBMS?

> *DBMS (Database Management System) is software that allows users to create, store, organize, retrieve, and manage data in a database. It acts as an interface between the database and users/applications.*

Function of DBMS	Description
Data Storage	Stores large amounts of data in an organized manner on disk
Data Retrieval	Allows users to search and retrieve specific data using queries (SQL)
Data Manipulation	Users can Insert, Update, Delete, and Modify records
Data Security	Controls who can access or modify data using passwords and permissions
Data Integrity	Ensures accuracy and consistency of data using validation rules
Backup & Recovery	Automatically backs up data and recovers it in case of failure
Concurrency Control	Allows multiple users to access the database simultaneously without conflicts
Data Independence	Changes in data storage structure do not affect application programs

1.3 File System vs DBMS

Feature	Traditional File System	DBMS
Data Redundancy	High — same data stored in multiple files	Low — centralized data, no duplication
Data Inconsistency	Common — different files may have different values	Avoided — single source of truth
Data Sharing	Difficult — file formats vary	Easy — standardized access for all users
Data Security	Minimal — file permissions only	Strong — user roles, passwords, encryption

Feature	Traditional File System	DBMS
Data Integrity	No automatic validation	Enforced using constraints and rules
Querying Data	Manual programming required	Easy with SQL queries
Backup & Recovery	Manual process	Automatic, built-in
Example	Storing student data in Excel/text files	Storing in MS Access / MySQL database

1.4 Types of DBMS

Type	Description	Examples
Relational DBMS (RDBMS)	Data stored in tables (rows and columns) related to each other. Uses SQL. Most widely used type.	MS Access, MySQL, Oracle, PostgreSQL, SQL Server
Hierarchical DBMS	Data organized in tree-like structure (parent-child). Fast access but rigid.	IBM IMS, Windows Registry
Network DBMS	Like hierarchical but allows multiple parent records. More flexible.	IDMS, Integrated Data Store
Object-Oriented DBMS	Data stored as objects (like OOP programming). Handles complex data types.	MongoDB (partially), ObjectDB, db4o
NoSQL DBMS	Non-relational. Stores data as documents, key-value, graphs, or columns. Very scalable.	MongoDB, Cassandra, Redis, Firebase

1.5 Important DBMS Terminology

Term	Definition	Example
Table	A collection of related data organized in rows and columns. Also called a Relation.	Student table, Employee table
Field (Column)	A single attribute/characteristic of the data. Each field has a name and data type.	StudentID, Name, Age, Email
Record (Row)	A single complete entry in a table containing all fields for one entity.	101, Ajay, 20, ajay@email.com
Primary Key	A field (or combination) that uniquely identifies each record. Cannot be NULL or duplicate.	StudentID — each student has a unique ID
Foreign Key	A field in one table that references the Primary Key of another table. Creates relationships.	CourseID in Student table refers to Course table
Query	A request to retrieve, update, insert, or delete data from the database.	Show all students with marks > 80
Schema	The overall structure/blueprint of the database — tables, fields, data types, relationships.	Database design diagram
Index	Special data structure to speed up data retrieval. Like an index in a book.	Index on Name field speeds up name searches

Term	Definition	Example
Relationship	Association between two tables through primary key - foreign key link.	One-to-Many: one teacher, many students
NULL	Absence of a value. Not zero, not blank — means 'unknown' or 'not applicable'.	A student's email field may be NULL if not provided

> **Exam Tip:** Primary Key = Unique + NOT NULL + Only one per table. Foreign Key = links two tables. NULL = no value (not zero).

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SECTION 2: CREATING A DATABASE (MS ACCESS)

2.1 Introduction to MS Access

> *Microsoft Access is a Relational DBMS (RDBMS) included in Microsoft Office. It is ideal for small-to-medium databases and provides a graphical interface to create and manage databases without extensive SQL knowledge.*

MS Access Object	Description	Purpose
Tables	Store actual data in rows and columns	Foundation of any database — all data lives here
Queries	Questions asked to the database to retrieve specific data	Filter, sort, calculate, search data from tables
Forms	Graphical data entry screens	User-friendly interface for entering and viewing data
Reports	Formatted printable summaries of data	Print data in professional format for sharing
Macros	Automated sequences of actions	Automate repetitive tasks (open form, run query)
Modules	VBA code for advanced automation	Custom programming logic for complex operations

2.2 Steps to Create a New Database in MS Access

Step 1: Open MS Access — Click Start → All Programs → Microsoft Office → Microsoft Access OR search 'Access'

Step 2: New Database — Click 'Blank Database' on the welcome screen

Step 3: Name the File — In the right panel, type a name for your database file (e.g., School.accdb)

Step 4: Choose Location — Click the folder icon to browse and select where to save the file

Step 5: Create — Click 'Create' button — a new empty database opens with a blank Table1

- File extension for Access 2007 and later: .accdb (Access Database)
- Older Access versions (2003 and earlier): .mdb (Microsoft Database)
- The Navigation Pane on left side shows all objects: Tables, Queries, Forms, Reports

2.3 Database Views in MS Access

View	Description	Use
Datasheet View	Shows data in rows and columns (like a spreadsheet)	Enter, edit, and view data directly
Design View	Shows field names, data types, and field properties	Create and modify table structure

View	Description	Use
Form View	Shows a form for data entry (one record at a time)	User-friendly data entry and navigation
Report View	Preview of how the report will look when printed	Check report layout and data
SQL View	Shows the raw SQL query code	Write/view SQL statements for queries

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SECTION 3: CREATING A TABLE

3.1 What is a Table?

> *A Table is the primary object in a database that stores data in an organized grid of rows (records) and columns (fields). Every database must have at least one table.*

Component	Also Called	Description	Example
Column	Field / Attribute	One category of information; has a name and data type	StudentName, DateOfBirth, Marks
Row	Record / Tuple	One complete entry — all fields for a single item	101, Ajay Sharma, 20, 85
Cell	—	Intersection of one row and one column — holds one value	The value '85' in the Marks column

3.2 Steps to Create a Table in Design View

Step 1: Open Design View — Click 'Create' tab → 'Table Design' button in Tables group

Step 2: Add Field Names — In 'Field Name' column, type the name of each field (e.g., StudentID, Name, Age)

Step 3: Set Data Type — In 'Data Type' column, choose the type for each field (Text, Number, Date, etc.)

Step 4: Set Description — Optionally add a description to explain what this field stores

Step 5: Set Primary Key — Right-click the field that should be unique → Set Primary Key (small key icon appears)

Step 6: Set Field Properties — In the lower panel, set field size, required, default value, validation rules

Step 7: Save Table — Press Ctrl+S → type table name (e.g., tblStudents) → click OK

3.3 Field Types (Data Types) in MS Access

> *A data type defines what kind of data a field can store. Choosing the correct data type ensures data integrity and efficient storage.*

Data Type	Description	Size / Range	Example Use
Short Text (Text)	Stores alphanumeric characters — letters, numbers, symbols	Up to 255 characters	Name, Address, City, Email, Phone
Long Text (Memo)	Stores large amounts of text	Up to 65,535 characters	Description, Notes, Comments
Number	Stores numeric values for calculations	Byte, Integer, Long, Single, Double	Age, Quantity, Marks, Salary
Date/Time	Stores date and/or time values	Jan 1, 100 to Dec 31, 9999	DateOfBirth, OrderDate, EnrollmentDate
Currency	Stores monetary values; prevents rounding errors	Up to 15 digits + 4 decimal places	Price, Salary, Fee, Cost

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Data Type	Description	Size / Range	Example Use
AutoNumber	Automatically generates a unique incrementing number. Perfect for Primary Key.	Long Integer (1, 2, 3...)	StudentID, OrderID, EmployeeID
Yes/No (Boolean)	Stores only two values: Yes/No, True/False, On/Off	1 bit	IsActive, IsMarried, HasPaid
OLE Object	Embeds files — images, Word docs, Excel sheets, sounds	Up to 1 GB	Photo, Resume, Signature
Hyperlink	Stores clickable web/email/file links	Up to 2048 characters	Website, EmailAddress
Attachment	Attaches files directly (like email attachment)	Up to 2 GB	Profile photo, documents
Calculated	Calculates value from other fields using an expression	Based on expression result	TotalMarks = Sub1 + Sub2 + Sub3
Lookup Wizard	Creates a field that lets user pick value from a list or another table	Based on source	Department, Grade, Status dropdown

> **Exam Tip:** AutoNumber = best choice for Primary Key (auto-generates unique IDs). Short Text for names, addresses. Number for marks, age. Date/Time for dates. Currency for money.

3.4 Field Properties

Property	Description	Example
Field Size	Maximum number of characters (Text) or numeric range (Number)	Field Size = 50 for Name field
Format	How the value is displayed (uppercase, date format, number format)	Format = 'dd/mm/yyyy' for dates
Input Mask	Template that controls how data is entered — guides user input	Input Mask = 00000 for 5-digit PIN
Caption	Label shown for the field in forms and reports (can be different from field name)	Caption = 'Student Name' for StudentName field
Default Value	Value automatically entered if user doesn't type anything	Default Value = 'India' for Country field
Validation Rule	Rule that data must satisfy before being accepted	Validation Rule: >=0 And <=100 for Marks
Validation Text	Error message shown if validation rule is violated	'Marks must be between 0 and 100'
Required	Whether the field MUST have a value (cannot be left empty)	Required = Yes for StudentName
Allow Zero Length	Whether an empty string ('') is allowed for Text fields	Allow Zero Length = No for required text
Indexed	Creates an index for faster searches on this field	Indexed = Yes (No Duplicates) for primary key

3.5 Entering Data in a Table

> *After creating the table structure, switch to Datasheet View to enter actual data records.*

Step 1: Switch to Datasheet View — Click 'View' in the ribbon → 'Datasheet View' OR right-click table → 'Open'

Step 2: Click First Cell — Click in the first empty cell under the first field name

Step 3: Type Data — Type the value for that field and press Tab to move to the next field

Step 4: Complete a Record — After filling all fields, press Tab or Enter to move to the next row (new record)

Step 5: Save Data — Data is saved automatically when you move to a new record. Use Ctrl+S to save manually.

- Navigate cells: Tab (next field), Shift+Tab (previous field), Arrow keys
- New record shortcut: Ctrl + Plus (+) key
- Delete record: Select row → right-click → Delete Record OR press Delete key
- Undo last entry: Ctrl+Z (only works before moving to next record)
- The asterisk (*) row at the bottom is the 'new record' row — click it to add a record

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SECTION 4: TABLE OPERATIONS

4.1 Preview and Print a Table

Step 1: Open Table — Double-click the table name in Navigation Pane to open in Datasheet View

Step 2: Print Preview — Click 'File' tab → 'Print' → 'Print Preview' OR click Print Preview button

Step 3: Adjust Settings — In Print Preview: set page orientation (Portrait/Landscape), margins, paper size

Step 4: Print — Click 'Print' button → set number of copies → click OK

- Page Setup: File → Print → Page Setup — set margins, page size, column widths for printing
- Landscape orientation is better for wide tables with many columns
- You can print all records or specify a range (pages 1-3, for example)

4.2 Changing Row Height and Column Width

Operation	Method 1 (Mouse)	Method 2 (Menu)
Change Column Width	Place mouse cursor on right border of column header → drag left/right	Right-click column header → 'Column Width' → enter value
Change Row Height	Place mouse cursor on bottom border of any row selector → drag up/down	Right-click any row selector → 'Row Height' → enter value
Best Fit Column	Double-click right border of column header (auto-fits to content)	Right-click column header → 'Column Width' → 'Best Fit'
Select All Rows	Click the empty box at top-left corner (row/column selector intersection)	Ctrl+A to select all records

- All rows in Access always have the same height — you cannot set individual row heights
- Column widths can be set individually for each field column

4.3 Closing and Opening a Table

- Close a Table: Click the X on the table tab OR right-click tab → Close OR Ctrl+W / Ctrl+F4
- Access asks to save if you changed layout (column widths, row height); data changes are auto-saved
- Open a Table: Double-click the table name in the Navigation Pane on the left side
- Open in Design View: Right-click table → 'Design View' to see/edit the table structure

4.4 Sorting Records in a Table

> *Sorting arranges records in a specific order based on the values in one or more fields. Sorting does NOT permanently change the data — it just changes the display order.*

Sort Type	Description	Steps
Ascending Sort (A to Z / 0 to 9)	Alphabetical A→Z for text; smallest to largest for numbers; oldest to newest for dates	Click field to sort → Home tab → Ascending button (AZ with up arrow)
Descending Sort (Z to A / 9 to 0)	Alphabetical Z→A for text; largest to smallest for numbers; newest to oldest for dates	Click field to sort → Home tab → Descending button (ZA with down arrow)
Remove Sort	Returns records to their natural/original order	Home tab → Remove Sort button
Multi-column Sort	Sort by multiple fields (e.g., sort by City, then by Name within each city)	Advanced → Advanced Filter/Sort → add multiple sort criteria

- Quick sort: Right-click on any value in a field → 'Sort Smallest to Largest' or 'Sort Largest to Smallest'

4.5 Finding and Replacing Text

> *Find & Replace lets you search for specific data in a table and optionally replace it with different data. Very useful for bulk updates.*

Feature	Shortcut	Steps
Find	Ctrl + F	Opens Find and Replace dialog → type search text → click Find Next
Replace	Ctrl + H	Opens Replace tab → type Find What and Replace With → Find Next or Replace All

- Search Options: Match = Whole Field / Any Part of Field / Start of Field
- Case-sensitive search: Check 'Match Case' checkbox
- Search Direction: Up, Down, or All
- Replace All: Replaces every occurrence at once — use carefully, cannot be undone easily
- Find in specific field: Click in that field column before opening Find & Replace

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SECTION 5: QUERIES — USING QUERY WIZARD

5.1 What is a Query?

> *A Query is a question asked to the database to retrieve specific data that meets certain conditions. Queries filter, sort, calculate, and combine data from one or more tables. The result is called a Recordset (a temporary table showing results).*

Query Type	Description	Example
Select Query	Retrieves records that match specified criteria — most common type	Show all students with Marks > 80
Parameter Query	Asks user for input (criteria) at runtime before executing	Prompt: 'Enter City:' → shows students from that city
Crosstab Query	Summarizes data in a row-and-column matrix format (like pivot table)	Total sales per product per month
Make Table Query	Creates a new table from query results	Create 'TopStudents' table from students with A grade
Append Query	Adds records from one table to another	Add new student records to archive table
Update Query	Changes existing data in records that match criteria	Increase all salaries by 10%
Delete Query	Permanently deletes records matching criteria	Delete all orders older than 5 years

5.2 Creating a Query Using the Simple Query Wizard

Step 1: Open Query Wizard — Click 'Create' tab → 'Query Wizard' button in Queries group

Step 2: Choose Wizard Type — Select 'Simple Query Wizard' → click OK

Step 3: Select Table/Query — From 'Tables/Queries' dropdown, choose your source table (e.g., tblStudents)

Step 4: Select Fields — Double-click fields from 'Available Fields' list to add them to 'Selected Fields' OR use >> to add all

Step 5: Choose Detail or Summary — 'Detail' shows all records. 'Summary' shows calculated totals (Sum, Avg, Count, etc.)

Step 6: Name the Query — Type a meaningful name (e.g., 'Students with High Marks') → click Finish

Step 7: View Results — Query runs and shows results in Datasheet View

5.3 Adding Criteria to a Query (Design View)

> *To filter specific records, open the query in Design View and add criteria in the Criteria row below each field.*

Criteria Example	What it Does	Field to Apply On
=85 or just 85	Records where value exactly equals 85	Marks, Age, Salary (Number fields)

Criteria Example	What it Does	Field to Apply On
>80	Records where value is greater than 80	Marks, Score, Salary
>=80 And <=90	Records where value is between 80 and 90 (inclusive)	Marks, Age
Between 80 And 90	Same as above — Access shorthand	Marks, Age, Salary
Like 'A*'	Records where text starts with the letter A (wildcard *)	Name, City, Address
Like '*Kumar*'	Records where text contains the word 'Kumar' anywhere	Name, Description
='Kaithal'	Records where text field exactly equals Kaithal	City, State
Is Null	Records where the field has no value (empty)	Email, Phone, Remark
Is Not Null	Records where the field has some value	Email, Address
In ('Delhi','Mumbai','Kaithal')	Records matching any value in the list	City
Not 'Delhi'	All records EXCEPT those where City = Delhi	City
Date()	Today's date (dynamic)	OrderDate, EnrollmentDate
Year([DateOfBirth])=2000	Students born in year 2000	DateOfBirth

> **Exam Tip:** Wildcard in Access: * = any characters (Like 'A*' = starts with A). ? = single character (Like 'A?' = two-letter name starting with A). # = single digit.

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SECTION 6: REPORTS — CREATING, MODIFYING AND PRINTING

6.1 What is a Report?

> *A Report is a formatted, printable document generated from data in a table or query. Reports present data in a professional, organized layout — with titles, groupings, totals, and formatting. Reports are output objects — they cannot be used to edit data.*

Report Type	Description	Use
Tabular Report	Data arranged in columns — one record per row (like a table/spreadsheet layout)	Employee list, Student marks sheet
Columnar Report	Each field on a separate line for each record — like a form printout	Detailed individual record printout
Grouped Report	Records grouped by a category field with subtotals per group	Sales by region, Students by class
Summary Report	Shows only totals/averages per group, no individual records	Total sales per month
Label Report	Formatted as mailing labels (multiple records per page)	Address labels, name tags

6.2 Creating a Report Using the Report Wizard

Step 1: Open Report Wizard — Click 'Create' tab → 'Report Wizard' button in Reports group

Step 2: Select Data Source — From 'Tables/Queries' dropdown, choose the table or query the report will be based on

Step 3: Select Fields — Double-click fields to add to report OR use >> to add all fields

Step 4: Add Grouping — Select a field to group records by (optional) — e.g., group by Class, Department, City

Step 5: Set Sort Order — Choose up to 4 fields to sort by (Ascending or Descending)

Step 6: Choose Layout — Select Layout: Stepped, Block, or Outline. Select Orientation: Portrait or Landscape

Step 7: Name the Report — Type a title for the report → choose 'Preview the report' → click Finish

6.3 Report Sections

Section	Description	Example Content
Report Header	Appears ONCE at the very beginning of the entire report	Report title, company logo, date printed
Page Header	Appears at the TOP of every page	Column headings (field names), page title
Group Header	Appears at the start of each group (if grouping is set)	Group name — e.g., 'Class: 10th A'
Detail Section	Contains the actual data records — repeated for every record	StudentID, Name, Marks, Grade for each student

Section	Description	Example Content
Group Footer	Appears at the end of each group	Group subtotals — e.g., 'Total students in this class: 30'
Page Footer	Appears at the BOTTOM of every page	Page number, date, confidentiality notice
Report Footer	Appears ONCE at the very end of the entire report	Grand totals, summary statistics, signature area

6.4 Modifying a Report in Design View

> *After creating a report with the wizard, you can modify its layout, formatting, and content in Design View or Layout View.*

- Open Design View: Right-click report name → 'Design View'
- Move Controls: Click and drag any text box, label, or image to a new position
- Resize Controls: Click control → drag the handles (small squares) on edges to resize
- Add/Delete Fields: Drag fields from Field List panel to the Detail section; select and press Delete to remove
- Add Title/Label: Design tab → Label button → draw on Report Header → type text
- Add Page Number: Design tab → Insert Page Number → choose format and position
- Add Date/Time: Design tab → Insert Date and Time → choose format
- Add Logo: Design tab → Logo → browse and insert image file
- Group & Sort: Design tab → Group & Sort → add grouping or sorting fields
- Add Totals: Click a numeric field → Design tab → Totals → choose Sum, Average, Count, etc.
- Change Font: Select control → Format tab → change font family, size, bold, italic, color

6.5 Printing a Report

Step 1: Open the Report — Double-click report name in Navigation Pane (opens in Report View)

Step 2: Print Preview — Click 'File' → 'Print' → 'Print Preview' OR right-click report → 'Print Preview'

Step 3: Page Setup — In Print Preview: adjust margins, orientation (Portrait/Landscape), paper size

Step 4: Print — Click Print button → set copies, printer → click OK

- Export options: File → Save As → Export to PDF/XPS, Excel, Word, HTML
- Email report: External Data tab → Email → sends report as attachment

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SECTION 7: FORMS — CREATING, DATA ENTRY AND FORMATTING

7.1 What is a Form?

> *A Form is a database object that provides a user-friendly graphical interface for entering, viewing, and editing data in a table. Instead of the raw spreadsheet view, a form displays one or a few records at a time with labels, images, and custom layout.*

Advantage	Description
User Friendly	Shows one record at a time in a clean layout — easier than Datasheet view
Data Validation	Can include validation messages to prevent wrong data entry
Custom Layout	Fields arranged professionally with labels, colors, images, buttons
Controlled Access	Can show only certain fields, hide sensitive fields from users
Navigation	Built-in navigation buttons to move through records
Calculations	Can show calculated values (e.g., Total = Price × Quantity)

7.2 Types of Forms

Form Type	Description
Single Form (Single Record)	Shows ONE record at a time in a full-page layout — most common
Continuous Form	Shows MULTIPLE records, each in form layout, one below the other
Split Form	Shows form view (one record) on top AND datasheet view below simultaneously
Datasheet Form	Opens the form but displays like a datasheet grid
Multiple Items Form	Similar to Continuous form — shows multiple records in tabular layout
Subform	A form embedded within another form — shows related records
Modal Dialog Form	A popup form that must be closed before continuing to main window

7.3 Creating a Form Using the Form Wizard

Step 1: **Open Form Wizard —** Click 'Create' tab → 'Form Wizard' button in Forms group

Step 2: **Select Data Source —** From 'Tables/Queries' dropdown, choose the table (e.g., tblStudents)

Step 3: **Select Fields —** Add desired fields to the form using >> (add all) or > (add one). Use < or << to remove.

Step 4: **Choose Layout —** Select form layout: Columnar (vertical), Tabular (table-like), Datasheet, Justified

Step 5: **Name the Form —** Type a name for the form (e.g., 'Student Entry Form') → click Finish

Step 6: **View the Form —** Form opens in Form View — ready to use for data entry

Form Layout Option	Description
Columnar	Each field and its label on separate rows; one record at a time. Most common for data entry.
Tabular	Fields are columns, records are rows — like a spreadsheet but in form view
Datasheet	Same as Datasheet view of table — grid format
Justified	Fields fill the width of the form, wrapped across multiple rows

7.4 Entering Data Using a Form

> *Once the form is created, you can use it to add, edit, and view records. Data entered in the form is saved directly to the underlying table.*

- Open the form: Double-click the form name in Navigation Pane
- New record: Click the 'New (blank) record' button (right-pointing arrow with asterisk) in the navigation bar at the bottom
- Enter data: Click in each field (text box) and type the value
- Move to next field: Press Tab or Enter
- Navigate records: Use navigation buttons at bottom (First, Previous, Next, Last, New)
- Edit existing record: Navigate to the record → click in field → make changes → Tab or Enter to confirm
- Delete record: Navigate to record → Home tab → Delete → Delete Record
- Save record: Move to new record (auto-saves) or Shift+Enter to save without moving
- Shortcut — add new record: Ctrl + Plus (+)
- Undo changes: Press Escape key (before saving) to undo all changes to current record

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SECTION 8: BASIC FORMATTING OF FORMS AND REPORTS

8.1 Form and Report Design Views

> *Both forms and reports can be modified in Design View or Layout View. Design View gives full control over positioning. Layout View shows live data while you adjust the layout.*

View	Description	Best For
Form View / Report View	Normal usage view — data visible and functional	Data entry (form) / previewing (report)
Layout View	Live data visible + can resize/move controls	Quick layout adjustments while seeing real data
Design View	Full structural editing — no live data shown	Complex changes, adding controls, advanced formatting

8.2 Controls in Forms and Reports

Control Type	Description	Use
Label	Displays static text that the user cannot edit	Field names, headings, instructions, titles
Text Box	Displays and allows editing of field data from the table	Showing and entering StudentName, Marks, etc.
Bound Text Box	Linked to a specific table field — shows that field's data	Main data fields in form/report
Unbound Text Box	Not linked to any field — for calculations or user input	Total = [Price] * [Quantity]
Combo Box	Dropdown list to select a value	Select Department, Grade, City from list
List Box	Scrollable list of options (all visible)	Select multiple items from a list
Check Box	Yes/No toggle control (ticked = Yes, unticked = No)	IsActive, HasPaid, IsMarried fields
Option Button (Radio)	Select one option from a group	Gender: Male / Female / Other
Toggle Button	Button that stays pressed or unpressed (Yes/No)	Alternative to checkbox
Command Button	Clickable button that performs an action	Save Record, Print, Close Form buttons
Image	Displays a picture or logo	Company logo in report header, student photo
Line / Rectangle	Decorative elements to separate sections	Divider lines, grouping boxes
Tab Control	Multiple pages/tabs within a form	Split a complex form into organized sections
Subform/Subreport	Embed another form/report inside this one	Show related order items inside an order form

8.3 Formatting Controls — Text and Appearance

Formatting Option	How to Apply	Description
Font Family	Format tab → Font group → Font Name dropdown	Change typeface: Arial, Times New Roman, Calibri
Font Size	Format tab → Font Size box → type or select size	Change text size: 8pt, 10pt, 12pt, 14pt, 16pt
Bold / Italic / Underline	Format tab → B, I, U buttons OR Ctrl+B, Ctrl+I, Ctrl+U	Apply text styling to labels and text boxes
Font Color	Format tab → Font Color dropdown (A with color bar)	Change text color for emphasis or branding
Background Color (Fill)	Format tab → Background Color button	Change background color of control or section
Text Alignment	Format tab → Align Left, Center, Align Right buttons	Align text within the control
Border Style	Property Sheet → Border Style → Solid, Dashes, Dots, Transparent	Control's border appearance
Border Width	Property Sheet → Border Width → Hairline, 1pt, 2pt, 3pt	Thickness of control border
Border Color	Property Sheet → Border Color → pick from palette	Color of the control border
Special Effect	Property Sheet → Special Effect → Flat, Raised, Sunken, Etched, Shadowed, Chiseled	3D appearance effect on controls

8.4 Formatting the Form/Report Background and Sections

- Change form background color: Open form in Design View → click empty area of section → Format tab → Background Color
- Add background image to form: Form's Property Sheet → Picture property → browse for image file
- Change section color: Click the section bar (e.g., 'Detail') → Background Color button in Format tab
- Add/remove form header and footer: In Design View, right-click form → 'Form Header/Footer'
- Adjust section height: Drag the bottom edge of a section bar up or down

8.5 Themes and Auto Formatting

- Apply a Theme: Design tab → Themes group → click a theme to apply colors and fonts instantly
- Change Colors scheme only: Design tab → Colors → pick a color palette
- Change Fonts scheme only: Design tab → Fonts → pick a font combination
- Themes apply to all forms and reports in the database for consistent look

8.6 Conditional Formatting

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> *Conditional Formatting changes the appearance of a control based on the value it contains — like highlighting failing marks in red or top marks in green.*

Step 1: **Select Control —** Click on the text box you want to conditionally format

Step 2: **Open Dialog —** Format tab → Conditional Formatting button → 'New Rule'

Step 3: **Set Condition —** Choose: 'Field Value Is' → choose operator (Greater Than, Less Than, Between, etc.) → enter value

Step 4: **Set Format —** Choose the formatting to apply when condition is met: Bold, Italic, font color, background color

Step 5: **Add More Rules —** Click 'New Rule' to add additional conditions (e.g., <50 = Red, 50-75 = Yellow, >75 = Green)

Step 6: **Apply —** Click OK — formatting applies automatically in Form View based on values

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SECTION 9: QUICK REVISION POINTS

Key Points for Exam

DBMS Fundamentals

- DBMS = Software to create, manage, and control databases. Examples: MS Access, MySQL, Oracle
- Table = rows (records) + columns (fields). Primary Key = unique + not null identifier
- RDBMS = Relational DBMS — data in tables linked by keys. Most common type.
- DBMS advantages over file system: No redundancy, security, integrity, easy queries

Tables

- AutoNumber = best for Primary Key (auto 1,2,3...). Short Text for names. Currency for money.
- Validation Rule: controls what data is accepted. Validation Text: error message shown
- Required = Yes means field cannot be left empty
- Design View = structure. Datasheet View = actual data entry

Queries

- Query = question to database. Select Query is most common.
- Criteria: >80 (greater), Like 'A*' (starts with A), Between 10 And 20, Is Null
- Wildcard: * = many characters, ? = one character, # = one digit
- Query Wizard: Create tab → Query Wizard → Simple Query Wizard

Reports and Forms

- Report sections: Report Header → Page Header → Group Header → Detail → Group Footer → Page Footer → Report Footer
- Report = printable output only — cannot edit data in a report
- Form = data entry screen — can add, edit, delete records
- Form Wizard: Create tab → Form Wizard → select fields → choose layout (Columnar is most common)
- Conditional Formatting: Format tab → Conditional Formatting → highlight values by rules

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SECTION 10: IMPORTANT MCQ QUESTIONS

Multiple Choice Questions (MCQs)

> *20 important exam questions covering all topics. Correct answer marked with ✓ and explanation provided.*

Q1. DBMS stands for:

(a) Data Backup Management System
(b) Database Management System ✓
(c) Data Business Management Software
(d) Digital Base Management System

Explanation: *DBMS = Database Management System. It is software that allows users to create, manage, and control access to databases. Examples: MS Access, MySQL, Oracle, SQL Server.*

Q2. In a database table, a row is also called a:

(a) Field
(b) Attribute
(c) Record ✓
(d) Column

Explanation: *A Row = Record (or Tuple in formal terminology). It represents one complete entry of data. A Column = Field (or Attribute). Each record contains values for all fields.*

Q3. Which data type in MS Access automatically generates a unique number for each new record?

(a) Number
(b) Short Text
(c) AutoNumber ✓
(d) Currency

Explanation: *AutoNumber data type automatically assigns a unique incrementing number (1, 2, 3...) to each new record. It is the best choice for the Primary Key field.*

Q4. A Primary Key in a database must be:

(a) Always a number
(b) Unique and cannot be NULL ✓
(c) Same for related records
(d) Hidden from users

Explanation: *Primary Key must be: (1) Unique — no two records can have the same value, and (2) NOT NULL — must always have a value. It uniquely identifies each record in the table.*

Q5. Which MS Access object is used to enter, view, and edit data in a user-friendly graphical layout?

(a) Table
(b) Query
(c) Report
(d) Form ✓

Explanation: *A Form provides a graphical user-friendly interface for entering and editing data. It can show one record at a time with labels, images, and custom layouts. Reports are for printing only.*

Q6. Which type of query asks the user for input criteria at the time it is run?

(a) Select Query
(b) Parameter Query ✓
(c) Crosstab Query

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(d) Update Query

Explanation: *A Parameter Query displays a dialog box asking the user to enter criteria before running. For example, it might ask 'Enter City:' and then show only students from that city.*

Q7. In MS Access, which section of a report appears ONCE at the top of the very first page only?

(a) Page Header
(b) Report Header ✓
(c) Group Header
(d) Detail Section

Explanation: *Report Header appears once at the very beginning of the entire report — only on the first page. Page Header appears at the top of EVERY page. Report Footer appears once at the end.*

Q8. The file extension for an MS Access 2007 and later database file is:

(a) .mdb
(b) .xls
(c) .accdb ✓
(d) .dbf

Explanation: *.accdb (Access Database) is the format for Access 2007, 2010, 2013, 2016, 2019, 2021. The older format (.mdb) was used in Access 2003 and earlier versions.*

Q9. Which criteria would you use in a query to find all students whose name starts with the letter 'S'?

(a) = 'S'
(b) Like 'S*' ✓
(c) Like '*S'
(d) Between 'S' And 'T'

Explanation: *Like 'S*' uses the wildcard * which matches any number of characters. So 'S*' means: starts with S followed by anything. This would find Suresh, Sachin, Sumit, Shila, etc.*

Q10. Which of these is NOT a valid field/data type in MS Access?

(a) Short Text
(b) AutoNumber
(c) Date/Time
(d) Formula ✓

Explanation: *'Formula' is not an MS Access data type. The correct type for calculations is 'Calculated'. MS Access data types include: Short Text, Long Text, Number, Date/Time, Currency, AutoNumber, Yes/No, OLE Object, Hyperlink, Attachment, Calculated.*

Q11. What is the keyboard shortcut to open the Find dialog in MS Access?

(a) Ctrl + H
(b) Ctrl + F ✓
(c) Ctrl + S
(d) Ctrl + P

Explanation: *Ctrl + F opens the Find dialog. Ctrl + H opens the Find and Replace dialog (to find AND replace). Ctrl + S = Save. Ctrl + P = Print.*

Q12. In a form, which navigation button do you click to add a brand new blank record?

(a) First Record (|<)
(b) Last Record (>|)
(c) New (blank) Record (>*) ✓
(d) Previous Record (<)

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Explanation: *The 'New (blank) record' button shows a right-pointing arrow with an asterisk (*). It is at the right end of the navigation bar at the bottom of the form. Clicking it jumps to a new empty record.*

Q13. Which report section repeats for EVERY individual data record?

(a) Report Header
(b) Page Header
(c) Detail Section ✓
(d) Group Header

Explanation: *The Detail section contains the actual data — it repeats once for every record in the report's data source. The Report Header and Footer appear once each; Page Header/Footer appear on every page.*

Q14. Sorting records in a table in MS Access — what is TRUE?

(a) Sorting permanently deletes some records
(b) Sorting permanently changes the order of records in the table
(c) Sorting only changes the display order, not the actual stored data ✓
(d) You cannot sort text fields, only number fields

Explanation: *Sorting in Access only changes the display order — it does NOT permanently change how data is stored. You can sort both text (A-Z) and number (0-9) and date fields.*

Q15. Which form layout shows one complete record per page with fields arranged vertically?

(a) Tabular
(b) Columnar ✓
(c) Datasheet
(d) Split Form

Explanation: *Columnar layout arranges each field on a separate row — field label on the left, data box on the right — one record at a time. This is the most common layout for data entry forms.*

Q16. Conditional Formatting in forms allows you to:

(a) Change form background for all records
(b) Format a control differently based on its value ✓
(c) Delete records that don't meet criteria
(d) Create automatic backup of data

Explanation: *Conditional Formatting changes the visual appearance (color, bold, italic) of a control based on the value it contains. Example: Show Marks < 50 in red, Marks >= 80 in green.*

Q17. A Foreign Key in a relational database:

(a) Is always an AutoNumber field
(b) Uniquely identifies each record in the same table
(c) References the Primary Key of another table to create a relationship ✓
(d) Cannot contain NULL values

Explanation: *A Foreign Key is a field in one table that references (links to) the Primary Key of another table. It creates a relationship between tables. Unlike Primary Keys, Foreign Keys CAN contain NULL values.*

Q18. Which wizard in MS Access helps you create a query without writing SQL manually?

(a) Form Wizard
(b) Report Wizard
(c) Simple Query Wizard ✓
(d) Import Wizard

Explanation: *Simple Query Wizard (under Create tab → Query Wizard) guides you through selecting a table, choosing fields, and optionally grouping/summarizing data — without needing to write SQL.*

Q19. In Design View of a table, the 'Validation Rule' property is used to:

(a) Change the font of data
(b) Define the maximum size of a text field
(c) Set a rule that data must satisfy before being saved ✓
(d) Set the primary key

Explanation: *Validation Rule defines a condition that data must meet. Example: >=0 And <=100 for a Marks field ensures only values between 0 and 100 are accepted. If violated, the Validation Text message is shown.*

Q20. Which MS Access object is used to present data in a formatted, printable layout?

(a) Form
(b) Query
(c) Table
(d) Report ✓

Explanation: *A Report is designed for formatted printing. It organizes data with headers, footers, groupings, subtotals, and professional layout. Unlike forms, reports cannot be used to add or edit data.*

Best of Luck for Your Exam!

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