MS EXCEL

Complete ADCA Course Notes

Advanced Diploma in Computer Applications (ADCA)

A complete classroom-ready study material covering Excel fundamentals, formulas, functions, data tools, charts, PivotTables, What-If Analysis, printing, protection, and practical reporting.

Module	Topic
1	Introduction to MS Excel & Basics
2	Cell Formatting & Styling
3	Formulas & Cell Referencing
4	Essential Built-in Functions
5	Advanced Functions & Data Lookup
6	Data Management & Validation
7	Charts, Graphics & Visualizations
8	Data Summarization & Reporting (Pivot Tables)
9	What-If Analysis & Productivity Tools
10	Page Setup, Printing & Security

Learning Objective

After completing these notes, a student should be able to create and manage workbooks, enter and format data, write formulas, use common and advanced functions, clean and validate datasets, build charts and PivotTables, perform What-If Analysis, automate repetitive work with useful tools, and prepare professional Excel reports for printing and sharing.

MODULE 1 — Introduction to MS Excel & Basics

1.1 What is Microsoft Excel?

Microsoft Excel is a spreadsheet program used to enter, organize, calculate, analyze, and present information. Excel stores information in a grid of rows and columns and provides formulas, functions, tables, charts, PivotTables, and many data-analysis tools.

1.2 Applications of Excel

- Preparing salary sheets, attendance sheets, invoices, bills, and stock registers.
- Creating student marksheets, result sheets, schedules, and fee records.
- Performing calculations, budgets, financial analysis, and business reports.
- Sorting, filtering, summarizing, and analyzing large datasets.
- Creating charts and dashboards for presenting information visually.
- Preparing printable reports and sharing structured data with others.

1.3 Excel Interface

- **Title Bar:** Displays the workbook name and application.
- **Quick Access Toolbar:** Provides frequently used commands such as Save and Undo.
- **File Tab:** Contains commands for opening, saving, printing, sharing, and options.
- **Ribbon:** Contains tabs and groups of commands.
- **Name Box:** Displays the address of the active cell and can be used to select ranges.
- **Formula Bar:** Displays or edits the content of the active cell.
- **Worksheet Area:** Main grid where data is entered.
- **Sheet Tabs:** Used to switch between worksheets.
- **Status Bar:** Displays information such as Ready, Sum, Average, and zoom controls.

1.4 Workbook, Worksheet, Rows, Columns and Cells

Item	Description	Example
Workbook	An Excel file containing worksheets.	Sales.xlsx
Worksheet	One sheet inside a workbook.	Sheet1
Row	Horizontal collection of cells.	Row 10
Column	Vertical collection of cells.	Column C
Cell	Intersection of a row and column.	C10
Range	Group of selected cells.	A1:D10

1.5 Basic Data Types

- **Text:** Names, addresses, product descriptions, etc.
- **Number:** Values such as 250, 75.5, or -20.
- **Date/Time:** Dates and times stored in Excel's date/time system.

- **Logical:** TRUE or FALSE.
- **Error values:** Examples include #DIV/0!, #VALUE!, #REF!, #NAME?, #N/A, and #NUM!.

1.6 Creating, Opening, Saving and Closing

- Create a workbook using File → New or Ctrl+N.
- Open an existing workbook using File → Open or Ctrl+O.
- Save using Ctrl+S. Use Save As when you need a new file name or format.
- Close the workbook after saving to prevent accidental data loss.

1.7 Entering and Editing Data

- Select a cell, type the content, and press Enter.
- Use Tab to move to the next column and Enter to move to the next row.
- Press F2 to edit the active cell.
- Use Delete to remove contents while keeping the cell itself.
- Use Ctrl+C, Ctrl+X, and Ctrl+V for copy, cut, and paste.

1.8 Selecting Cells and Ranges

- Click a cell to select it.
- Drag across cells to select a range.
- Hold Ctrl to select non-adjacent cells.
- Click a column letter or row number to select the complete column or row.
- Ctrl+A selects the current data region; pressing it again can select the worksheet.

1.9 Fill Handle and AutoFill

The small square at the bottom-right of a selection is the fill handle. Dragging it can copy formulas or continue patterns such as 1, 2, 3…, Monday, Tuesday, or Jan, Feb.

1.10 Essential Navigation Shortcuts

Shortcut	Action
Ctrl + Home	Move to the beginning of the worksheet.
Ctrl + End	Move to the last used cell.
Ctrl + Arrow	Move to the edge of a data region.
Page Up / Page Down	Move one screen up/down.
Alt + Enter	Insert a new line within a cell.
Ctrl + Arrow + Shift	Extend selection to the edge of a data region.

Exam Tip: Remember the difference between a workbook and a worksheet: a workbook is the Excel file; a worksheet is an individual sheet inside it.

MODULE 2 — Cell Formatting & Styling

2.1 Why Formatting is Important

Formatting improves readability and makes reports easier to understand. Formatting changes the appearance of data without changing its underlying value.

2.2 Font Formatting

- Change font family and size.
- Apply Bold, Italic, and Underline.
- Change font color.
- Use borders and fill colors to distinguish headings and totals.

2.3 Alignment and Text Control

- Horizontal alignment: Left, Center, Right.
- Vertical alignment: Top, Center, Bottom.
- Wrap Text displays long content on multiple lines within a cell.
- Merge & Center combines selected cells and centers their content.
- Indent can improve the visual hierarchy of text.

2.4 Number Formats

Format	Example Display	Typical Use
General	1250	Default/general data
Number	1,250.00	Quantities and measurements
Currency	■1,250.00	Money values
Percentage	25.00%	Rates and percentages
Date	24-Sep-2026	Dates
Time	04:30 PM	Time values
Scientific	1.25E+03	Very large/small numbers

2.5 Borders and Shading

- Use outside borders for tables and inside borders for structured records.
- Use a consistent fill color for headings.
- Use bold text and borders for totals and important sections.

2.6 Conditional Formatting

Conditional Formatting automatically changes the appearance of cells when specified conditions are met. Examples include highlighting values above a target, duplicate entries, top/bottom values, data bars, color scales, and icon sets.

2.7 Cell Styles and Themes

Cell Styles are predefined combinations of formatting. Themes control the overall font and color appearance of a workbook. Consistent styles make professional reports easier to maintain.

2.8 Format Painter

Format Painter copies formatting from one cell or range to another without copying the data.

2.9 Row Height and Column Width

- Drag a row or column boundary to resize it.
- Use AutoFit to fit content automatically.
- Double-click the boundary between column letters for AutoFit Column Width.

Practice: Create a monthly sales table with a colored heading, currency formatting, borders, centered headings, and conditional formatting for sales above ■50,000.

MODULE 3 — Formulas & Cell Referencing

3.1 Formula Basics

A formula is an expression used to calculate a result. Excel formulas normally begin with the equals sign (=). Formulas can contain numbers, cell references, operators, functions, and parentheses.

3.2 Arithmetic Operators

Operator	Meaning	Example
+	Addition	=A1+B1
-	Subtraction	=A1-B1
*	Multiplication	=A1*B1
/	Division	=A1/B1
^	Exponent	=A1^2
%	Percentage	=A1*10%

3.3 Comparison Operators

Operator	Meaning
=	Equal to
<>	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

3.4 Operator Precedence

Excel evaluates expressions according to operator precedence. Parentheses can be used to control the order. For example, **=(A1+B1)*C1** adds A1 and B1 before multiplying by C1.

3.5 Relative Cell Reference

A relative reference changes when a formula is copied. If B2 contains =A2*10%, copying it to B3 normally changes the reference to A3.

3.6 Absolute Cell Reference

An absolute reference remains fixed when a formula is copied. For example, **$E$1** locks both the column and row. This is useful when many formulas use the same tax rate, commission rate, or constant.

3.7 Mixed References

Reference	What is locked?	Example
Relative	Nothing	A1
Absolute	Column and row	$A$1
Mixed	Column only	$A1
Mixed	Row only	A$1

3.8 Range References

- **A1:A10** means cells A1 through A10.
- **A1:D10** means a rectangular block from A1 to D10.
- **A:A** refers to the entire A column.
- **1:1** refers to the entire first row.

3.9 Formula Copying

Use the fill handle to copy formulas. Always check whether references should be relative, absolute, or mixed before copying a formula across a large dataset.

3.10 Common Formula Errors

Error	Common Cause
#DIV/0!	A formula divides by zero or an empty cell.
#VALUE!	Wrong type of data is used in an operation.
#REF!	A formula refers to an invalid/deleted reference.
#NAME?	Excel does not recognize a function or name.
#N/A	A required value is not available, often in lookups.
#NUM!	Invalid numeric result or argument.

Practice: Put the GST rate in cell H1 and calculate GST for every product using an absolute reference such as =E2*$H$1.

MODULE 4 — Essential Built-in Functions

4.1 SUM, AVERAGE, MIN, MAX

Function	Syntax	Purpose
SUM	=SUM(B2:B20)	Adds numbers.
AVERAGE	=AVERAGE(B2:B20)	Returns arithmetic mean.
MIN	=MIN(B2:B20)	Smallest value.
MAX	=MAX(B2:B20)	Largest value.

4.2 COUNT Functions

Function	Syntax	Purpose
COUNT	=COUNT(A1:A20)	Counts numeric cells.
COUNTA	=COUNTA(A1:A20)	Counts non-empty cells.
COUNTBLANK	=COUNTBLANK(A1:A20)	Counts blank cells.

4.3 Logical Functions

IF: Returns one result when a condition is TRUE and another when it is FALSE.

> **Example:** =IF(C2>=40,"Pass","Fail")

AND: Returns TRUE when all supplied conditions are TRUE.

OR: Returns TRUE when at least one supplied condition is TRUE.

NOT: Reverses a logical result.

4.4 SUMIF, COUNTIF, AVERAGEIF

Function	Example	Use
SUMIF	=SUMIF(A2:A20,"East",B2:B20)	Adds values meeting one condition.
COUNTIF	=COUNTIF(C2:C20,">=50")	Counts cells meeting one condition.
AVERAGEIF	=AVERAGEIF(B2:B20,">0",B2:B20)	Averages values meeting one condition.

4.5 Text Functions

Function	Example	Purpose
LEFT	=LEFT(A2,5)	Returns characters from the left.
RIGHT	=RIGHT(A2,4)	Returns characters from the right.
MID	=MID(A2,3,5)	Returns characters from the middle.
LEN	=LEN(A2)	Counts characters.
TRIM	=TRIM(A2)	Removes extra spaces.
UPPER	=UPPER(A2)	Converts text to uppercase.
LOWER	=LOWER(A2)	Converts text to lowercase.
PROPER	=PROPER(A2)	Capitalizes words.
CONCAT	=CONCAT(A2," ",B2)	Joins text.
TEXTJOIN	=TEXTJOIN(", ",TRUE,A2:A5)	Joins multiple text items with a delimiter.

4.6 Date and Time Functions

Function	Example	Purpose
TODAY	=TODAY()	Current date.
NOW	=NOW()	Current date and time.
DAY	=DAY(A2)	Day number.
MONTH	=MONTH(A2)	Month number.
YEAR	=YEAR(A2)	Year number.
DATE	=DATE(2026,9,24)	Creates a date.
DATEDIF	=DATEDIF(A2,B2,"Y")	Calculates completed years/months/days between dates.

4.7 Rounding Functions

- **ROUND(number, digits):** Rounds to the specified number of digits.
- **ROUNDUP:** Always rounds away from zero.
- **ROUNDDOWN:** Rounds toward zero.
- **INT:** Returns the integer portion by rounding down.

Exam Tip: Know the difference between COUNT, COUNTA, and COUNTBLANK. They count numbers, non-empty cells, and blank cells respectively.

MODULE 5 — Advanced Functions & Data Lookup

5.1 Nested IF

A nested IF places one IF inside another. Example: =IF(B2>=80,"A",IF(B2>=60,"B",IF(B2>=40,"C","Fail"))). For complex rules, modern Excel may also use IFS.

5.2 IFS Function

Example: =IFS(B2>=80,"A",B2>=60,"B",B2>=40,"C",TRUE,"Fail"). IFS can make multiple-condition formulas easier to read.

5.3 SUMIFS, COUNTIFS and AVERAGEIFS

Function	Example	Purpose
SUMIFS	=SUMIFS(D2:D100,A2:A100,"East",B2:B100,"Laptop")	Sum using multiple criteria.
COUNTIFS	=COUNTIFS(A2:A100,"East",D2:D100,">=10000")	Count using multiple criteria.
AVERAGEIFS	=AVERAGEIFS(D2:D100,A2:A100,"East")	Average using multiple criteria.

5.4 XLOOKUP

XLOOKUP searches one range and returns the corresponding value from another range. Example: =XLOOKUP(A2,Products[Code],Products[Price],"Not Found"). It can search vertically or horizontally and provides a convenient alternative to older lookup methods.

5.5 VLOOKUP

VLOOKUP searches for a value in the first column of a table and returns a value from a specified column. Example: =VLOOKUP(A2,$H$2:$K$50,4,FALSE). The FALSE argument requests an exact match.

5.6 HLOOKUP

HLOOKUP searches the first row of a table and returns a value from a specified row.

5.7 INDEX and MATCH

INDEX returns a value at a specified row/column position. MATCH returns the position of a value in a range. Together they can perform flexible lookups, for example: =INDEX(C2:C50,MATCH(A2,A2:A50,0)).

5.8 IFERROR

IFERROR can replace an error result with a readable message. Example: =IFERROR(XLOOKUP(A2,H:H,I:I),"Not Found").

5.9 Dynamic Array Functions

Function	Example	Purpose
FILTER	=FILTER(A2:D100,D2:D100="Paid")	Returns rows matching a condition.
SORT	=SORT(A2:D100,2,1)	Sorts an array.
UNIQUE	=UNIQUE(B2:B100)	Returns unique values.
SEQUENCE	=SEQUENCE(10,1,1,1)	Generates a sequence of numbers.

5.10 Lookup Concepts

- **Exact match:** Finds the requested item precisely.

- **Approximate match:** Finds the closest appropriate match according to lookup rules.
- **Lookup table:** A structured list containing keys and related values.
- Always check for duplicate keys, missing values, and incorrect data types when lookup results seem wrong.

Practice: Create a product master table containing Product ID, Product Name, Category, Price, and Stock. Use XLOOKUP or VLOOKUP to retrieve product information from a separate order sheet.

MODULE 6 — Data Management & Validation

6.1 Excel Tables

Convert a dataset into an Excel Table using Insert → Table. Tables provide structured formatting, automatic expansion, filter buttons, calculated columns, and structured references.

6.2 Sorting

- Sort text A–Z or Z–A.
- Sort numbers smallest-to-largest or largest-to-smallest.
- Sort dates oldest-to-newest or newest-to-oldest.
- Use multi-level sorting to sort by one field and then another.

6.3 Filtering

Filtering temporarily hides rows that do not match selected criteria. Filters can be applied to text, numbers, dates, colors, and custom conditions.

6.4 Remove Duplicates

Data → Remove Duplicates identifies duplicate records based on selected columns and keeps one occurrence. Always keep a backup or copy of the original dataset before removing records.

6.5 Text to Columns

Text to Columns splits data from one column into multiple columns. It is useful for separating full names, CSV-style data, codes, or text separated by commas, spaces, tabs, or other delimiters.

6.6 Flash Fill

Flash Fill recognizes patterns in manually entered examples and fills the remaining cells. It can be useful for extracting names, changing text formats, or combining/splitting values.

6.7 Find and Replace

- Ctrl+F searches for data.
- Ctrl+H replaces matching text or values.
- Use Replace All carefully, especially in large workbooks.

6.8 Data Validation

Data Validation restricts what users can enter into cells. It can create drop-down lists and rules for whole numbers, decimals, dates, times, text length, or custom formulas.

6.9 Creating a Drop-Down List

- Select the target cells.
- Open Data → Data Validation.
- Choose List as the validation type.
- Provide a source range or comma-separated list.
- Test the drop-down and ensure invalid entries are handled appropriately.

6.10 Data Cleaning Checklist

- Remove unwanted leading/trailing spaces.
- Check spelling and inconsistent names.
- Standardize dates and number formats.
- Find duplicate records.
- Check for blank or missing values.
- Confirm that numbers are stored as numbers, not text.
- Verify formulas and lookup keys.

MODULE 7 — Charts, Graphics & Visualizations

7.1 Purpose of Charts

Charts convert numerical data into visual information. A good chart should make a pattern, comparison, trend, or relationship easier to understand.

7.2 Common Chart Types

Chart	Best Used For
Column	Comparing categories.
Bar	Comparing categories when labels are long.
Line	Showing trends over time.
Pie	Showing parts of a whole when categories are limited.
Area	Showing trends and cumulative magnitude.
Scatter	Showing relationships between two numeric variables.
Doughnut	Showing part-to-whole relationships with multiple series.
Combo	Combining two chart types, often for different scales.

7.3 Creating a Chart

- Select the data, including meaningful headings.
- Choose Insert → Charts.
- Select the appropriate chart type.
- Add a clear chart title.
- Check axis titles, legend, labels, and scale.
- Avoid unnecessary decoration that makes the data harder to read.

7.4 Chart Elements

- **Chart Title:** Explains what the chart shows.
- **Axes:** Display categories and values.
- **Legend:** Identifies data series.
- **Data Labels:** Display exact values.
- **Gridlines:** Help compare values.
- **Trendline:** Can show a trend in supported chart types.

7.5 Sparklines

Sparklines are small charts placed inside cells. They are useful for compact trend reporting.

7.6 Pictures, Shapes and Icons

- Insert pictures for logos, product images, or explanatory material.
- Use shapes for callouts, process diagrams, and labels.
- Use icons or visual indicators when appropriate for dashboards.

7.7 Good Visualization Practices

- Choose a chart type that matches the question.
- Use meaningful titles and units.
- Avoid misleading axis scales.
- Keep the number of colors and series manageable.
- Highlight important information without making the chart confusing.

MODULE 8 — Data Summarization & Reporting (Pivot Tables)

8.1 What is a PivotTable?

A PivotTable is an interactive tool for summarizing and analyzing large datasets. It can quickly calculate totals, counts, averages, and other summaries by categories.

8.2 Requirements for Good Source Data

- Use a single header row.
- Keep each column focused on one type of information.
- Avoid merged cells in the source dataset.
- Keep blank rows and columns out of the main data range.
- Use consistent data types and meaningful column names.

8.3 PivotTable Areas

Area	Purpose
Rows	Displays categories vertically.
Columns	Displays categories horizontally.
Values	Performs calculations such as Sum, Count, or Average.
Filters	Filters the complete PivotTable by selected fields.

8.4 Creating a PivotTable

- Click inside the source data.
- Choose Insert → PivotTable.
- Select the source and destination.
- Drag fields into Rows, Columns, Values, and Filters.
- Change the value calculation when required.

8.5 Value Field Settings

- Sum — total of numeric values.
- Count — number of records/items.
- Average — arithmetic average.
- Max/Min — largest or smallest value.
- Percentage calculations can be configured using Show Values As options.

8.6 Grouping Data

PivotTables can group dates by years, quarters, months, or other suitable periods. Numeric values can also be grouped into ranges when supported.

8.7 Slicers and Timelines

Slicers provide visual buttons for filtering PivotTables. Timelines provide an interactive way to filter date-based PivotTable data.

8.8 PivotCharts

A PivotChart provides a graphical view of PivotTable results and can respond to PivotTable filters and slicers.

8.9 Refreshing a PivotTable

When source data changes, refresh the PivotTable to update its results. For changing datasets, using an Excel Table as the source can make expansion and refresh workflows easier.

8.10 Example Report

Suppose a sales dataset has Date, Region, Salesperson, Product, Quantity, and Amount. A PivotTable can show total Amount by Region, then break each Region down by Product and Salesperson. A PivotChart can turn the same summary into a visual report.

MODULE 9 — What-If Analysis & Productivity Tools

9.1 What-If Analysis

What-If Analysis changes input values to observe how they affect formula results. It is useful for planning, budgeting, pricing, forecasting, and decision-support calculations.

9.2 Goal Seek

Goal Seek works backward from a desired result. You specify the formula cell that should reach a target, the target value, and the input cell that Excel is allowed to change.

9.3 Scenario Manager

Scenario Manager stores different sets of input values, such as Best Case, Normal Case, and Low Case. It can compare how these assumptions affect results.

9.4 Data Tables

A What-If Data Table can calculate many results from one or two changing inputs. It is useful for sensitivity analysis.

9.5 Solver

Solver is an optimization tool used to find a value that maximizes, minimizes, or reaches a target subject to constraints. It is useful for resource allocation and scheduling problems.

9.6 Freeze Panes

Freeze Panes keeps selected rows or columns visible while scrolling. It is especially useful for large tables.

9.7 Named Ranges

A named range assigns a meaningful name to a cell or range, such as TaxRate or SalesData. Names can make formulas easier to understand and maintain.

9.8 Tables and Structured References

In an Excel Table, formulas can use names such as **=SUM(Sales[Amount])** instead of traditional cell references. Structured references are easier to read and can expand automatically with the table.

9.9 Formula Auditing

- Trace Precedents shows cells that feed into a formula.
- Trace Dependents shows cells that depend on a formula.
- Show Formulas displays formulas instead of results.
- Error Checking helps identify common formula problems.

9.10 Comments and Notes

Comments/notes can document assumptions, explanations, or follow-up information without changing the actual cell value.

9.11 Templates

Templates provide a pre-designed structure for recurring tasks such as budgets, invoices, calendars, and reports.

MODULE 10 — Page Setup, Printing & Security

10.1 Page Setup

- **Orientation:** Portrait or Landscape.
- **Paper Size:** Select the required paper such as A4.
- **Margins:** Set Normal, Narrow, Wide, or custom margins.
- **Scaling:** Fit the sheet to a chosen number of pages when appropriate.
- **Print Area:** Select the exact range that should be printed.
- **Page Breaks:** Control where pages split.

10.2 Headers and Footers

Headers and footers can contain titles, dates, file names, page numbers, logos, and other information. They are useful for professional reports.

10.3 Print Titles

Print Titles can repeat selected rows or columns on every printed page. This is useful for repeating table headings.

10.4 Print Preview

Always check Print Preview before printing. Look for cut-off columns, unwanted blank pages, incorrect orientation, small text, and missing headings.

10.5 Page Break Preview

Page Break Preview displays page boundaries and helps adjust which rows and columns appear on each printed page.

10.6 Protecting a Worksheet

Worksheet protection can restrict changes to cells and worksheet structure. Protection should be configured according to the intended workflow and is not a substitute for a secure backup.

10.7 Protecting Workbook Structure

Workbook protection can restrict structural actions such as adding, deleting, moving, hiding, or renaming worksheets, depending on the protection settings.

10.8 Passwords and Security

- Use strong, unique passwords for files that require protection.
- Do not share passwords unnecessarily.
- Keep secure backups of important workbooks.
- Be cautious with macros and files received from unknown sources.
- Use trusted locations and organizational security procedures where applicable.

10.9 Final Report Checklist

- Check formulas and totals.
- Check spelling and headings.
- Check date, currency, and percentage formats.

- Remove unnecessary blank rows/columns.
- Check filters and hidden rows/columns.
- Refresh PivotTables and charts where necessary.
- Set print area and page orientation.
- Review Print Preview.
- Save the final workbook and keep a backup.

APPENDIX A — Excel Keyboard Shortcuts

Shortcut	Action
Ctrl + N	New workbook
Ctrl + O	Open workbook
Ctrl + S	Save
Ctrl + Shift + S	Save As
Ctrl + P	Print
Ctrl + C	Copy
Ctrl + X	Cut
Ctrl + V	Paste
Ctrl + Z	Undo
Ctrl + Y	Redo
Ctrl + F	Find
Ctrl + H	Replace
Ctrl + A	Select data/current region
Ctrl + 1	Open Format Cells
Ctrl + ;	Insert current date
Ctrl + Shift + :	Insert current time
Alt + =	AutoSum
F2	Edit active cell
F4	Repeat action / toggle reference types while editing formulas
Ctrl + Arrow	Move to edge of data region
Ctrl + Home	Go to first cell
Ctrl + End	Go to last used cell
Ctrl + Page Up/Down	Move between worksheets

APPENDIX B — Common Excel Errors

Error	Meaning / Typical Reason	What to Check
#DIV/0!	Division by zero/blank.	Denominator and source data.
#VALUE!	Wrong data type.	Text vs numeric/date values.
#REF!	Invalid cell reference.	Deleted/moved referenced cells.
#NAME?	Unrecognized name/function.	Spelling, quotes, named ranges.
#N/A	Value not available.	Lookup key and exact match.
#NUM!	Invalid numeric calculation.	Arguments and numeric limits.
#NULL!	Invalid range intersection in older Excel contexts.	Range/operator syntax.

APPENDIX C — Practical ADCA Projects

Project	Skills Covered
Student Marksheet	Formatting, SUM, AVERAGE, IF, grading, charts, printing.
Monthly Salary Sheet	Basic formulas, absolute references, deductions, net salary.
Sales Invoice	Lookup functions, calculations, tax, formatting, print setup.
Inventory Register	Tables, validation, sorting, filtering, conditional formatting.
Monthly Sales Dashboard	PivotTables, PivotCharts, slicers, KPIs, reporting.
Personal/Business Budget	SUMIF/SUMIFS, charts, What-If Analysis, formatting.
Attendance Register	COUNTIF, validation, conditional formatting, summaries.

APPENDIX D — Viva / Examination Questions

1. What is a workbook and what is a worksheet?
2. What is a cell reference? Give an example.
3. What is the difference between relative and absolute references?
4. What is the use of the SUM function?
5. Differentiate between COUNT, COUNTA, and COUNTBLANK.
6. What is the difference between SUMIF and SUMIFS?
7. What is XLOOKUP used for?
8. What is data validation?
9. How do you create a drop-down list?
10. What is conditional formatting?
11. What is the purpose of a PivotTable?
12. What are Rows, Columns, Values, and Filters in a PivotTable?
13. What is a PivotChart?
14. What is Goal Seek?
15. What is Scenario Manager?
16. What is the purpose of Freeze Panes?
17. What is a named range?
18. How do you set a print area?
19. How do you repeat headings on every printed page?
20. What is worksheet protection?

APPENDIX E — Final Revision Sheet

Remember: Excel is built around data, references, formulas, functions, and analysis. For an ADCA practical exam, focus on being able to create a clean dataset, format it professionally, calculate results with formulas/functions, use sorting/filtering/validation, create charts, summarize data with PivotTables, perform a basic What-If analysis, and produce a correctly formatted printed report.

Key formula examples

Task	Formula Example
Total	=SUM(B2:E2)
Average	=AVERAGE(B2:E2)
Pass/Fail	=IF(F2>=40,"Pass","Fail")
Conditional total	=SUMIF(A2:A100,"East",D2:D100)
Multiple-condition total	=SUMIFS(D2:D100,A2:A100,"East",B2:B100,"Laptop")
Lookup	=XLOOKUP(A2,H2:H100,I2:I100,"Not Found")
Handle error	=IFERROR(XLOOKUP(A2,H:H,I:I),"Not Found")
Current date	=TODAY()
Round value	=ROUND(A2,2)

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