

**1. What is the difference between 'Paste' and 'Paste Special' in Excel? Briefly explain with examples.**

Paste copies the entire cell including formulas and formatting.

**Example:**

- Cell A1 contains the formula  $=B1+C1$  and is formatted in bold.
- If you **Copy A1 → Paste**, the new cell will:
  - Still have  $=B1+C1$
  - Keep the same formatting (bold, color, borders)

Paste Special allows us to paste only specific elements like values, formulas, or formats based on requirement.

**Example:**

- Cell A1 contains the formula  $=B1+C1$  and is formatted in bold.
  - If you **Copy A1 → Paste**, the new cell will:
    - Still have  $=B1+C1$
    - Keep the same formatting (bold, color, borders)
- 2. Describe the functions and usefulness of 'Freeze Panes' and 'Split Panes' in Excel.**

### Freeze Panes

**Function:**

Freeze Panes keeps specific rows or columns fixed while you scroll through the worksheet.

**Usefulness:**

- Helps you always see headers or key columns
- Best for large datasets

**Common uses:**

- Freeze top row (column headers)
- Freeze first column (ID, Name)
- Freeze both rows & columns

## **Split Panes**

### **Function:**

Split Panes divides the worksheet into **multiple independent scrollable sections**.

### **Usefulness:**

- Compare different parts of the same worksheet
- View distant rows/columns at the same time

3. **Explain the difference between inserting a new row and inserting a new column in Excel. Can you insert multiple rows or columns at once?**

### **Insert New Row**

What it does:

- Adds a horizontal row
- New row is inserted above the selected row

### **Insert New Column**

What it does:

- Adds a vertical column
- New column is inserted to the left of the selected column

Yes, we can insert multiple rows/columns at once.

### **Insert Multiple Rows**

How:

- Select multiple rows (e.g., Rows 3–5)
- Right-click → Insert

### **Insert Multiple Columns**

How:

- Select multiple columns (e.g., Columns B–D)
- Right-click → Insert

4. **What are logical functions in Excel? Provide examples of at least two logical functions and their applications.**

Logical functions in Excel evaluate conditions and return results based on TRUE or FALSE values. Common logical functions include IF, AND, OR, and NOT, which are used for decision-making and data validation.

## 1. IF() Function

Syntax:

IF(logical\_test, value\_if\_true, value\_if\_false)

Example:

Marks in A1

=IF(A1 >= 50, "Pass", "Fail")

## 2. AND() Function

Syntax:

AND(condition1, condition2, ...)

Example:

Attendance in A1, Marks in B1

=IF(AND(A1 >= 75, B1 >= 50), "Eligible", "Not Eligible")

### 5. Discuss the purpose of 'XLOOKUP' and how it differs from the traditional 'VLOOKUP' function.

XLOOKUP is a modern Excel function used to search for a value in a range and return a corresponding result from another range.

It is designed to replace older lookup functions like VLOOKUP and HLOOKUP with more flexibility and fewer limitations.

Syntax:

XLOOKUP(lookup\_value, lookup\_array, return\_array, [if\_not\_found])

| Feature          | XLOOKUP      | VLOOKUP    |
|------------------|--------------|------------|
| Lookup direction | Left & Right | Right only |

| Column reference        | Direct range | Column index number |
|-------------------------|--------------|---------------------|
| Column insert safe      | Yes          | No                  |
| Exact match default     | Yes          | No (needs FALSE)    |
| Error handling          | Built-in     | Needs IFERROR       |
| Vertical/<br>Horizontal | Both         | Vertical only       |

6. Create a worksheet titled 'Employee Data' with columns: Name, Age, Department. Add 5 rows of data.

The screenshot shows the Microsoft Excel interface with the following details:

- Worksheet Title:** Employee Data - Excel
- Ribbon:** File, Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, Developer, Help
- Clipboard Context Menu:** Cut, Copy, Paste, Format Painter, Clipboard
- Font Group:** Calibri, 11pt, Bold, Italic, Underline, Font Color (Red), Alignment (Center)
- Font Size:** 11
- Font Style:** A^ A^
- Font Color:** Red
- Font Alignment:** Center
- Table Structure:**
  - Header Row (Row 1): A (Name), B (Age), C (Department)
  - Data Rows (Rows 2-6):
    - Kannan, 22, IT
    - Rani, 25, HR
    - Raji, 24, Customer Care
    - Bima, 27, Project Management
    - Pooja, 29, Operations
  - Empty Rows (Rows 7-8): Empty cells for Name, Age, and Department.
- Cell Selection:** C10
- Formula Bar:** fx

7. Demonstrate how to insert and delete multiple rows and columns in Excel. (Provide screenshots before and after the changes.)

### Insert Multiple Rows

1. Select multiple row numbers (e.g., Row 3 & 4)
2. Right-click → Insert  
→ Excel inserts the same number of new rows above the selection.

### Insert Multiple Columns

1. Select multiple column letters
2. Right-click → Insert  
→ New columns are added to the left of the selected columns.

### Delete Multiple Rows

1. Select multiple rows
2. Right-click → Delete  
→ Selected rows are removed, data shifts up.

### Delete Multiple Columns

1. Select multiple columns
2. Right-click → Delete  
→ Selected columns are removed, data shifts left.

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#### Before Changes:

| A      | B   | C                  |
|--------|-----|--------------------|
| Name   | Age | Department         |
| Kannan | 22  | IT                 |
| Rani   | 25  | HR                 |
| Raji   | 24  | Customer Care      |
| Bima   | 27  | Project Management |
| Pooja  | 29  | Operations         |
|        |     |                    |
|        |     |                    |

#### After Inserting Rows And columns:

| A      | B | C | D      | E                  |
|--------|---|---|--------|--------------------|
| Name   |   |   | Delete | Department         |
| Kannan |   |   | 22     | IT                 |
| Rani   |   |   | 25     | HR                 |
| Raji   |   |   | 24     | Customer Care      |
| Bima   |   |   | 27     | Project Management |
| Pooja  |   |   | 29     | Operations         |

After Deleting the inserted columns:

| A      | B   | C                  | D |
|--------|-----|--------------------|---|
| Name   | Age | Department         |   |
| Kannan | 22  | IT                 |   |
| Rani   | 25  | HR                 |   |
| Raji   | 24  | Customer Care      |   |
| Bima   | 27  | Project Management |   |
| Pooja  | 29  | Operations         |   |

8. Use Excel's 'Find and Replace' feature to update department names in a sample table. (Include a screenshot showing the replaced data.)

Before Replacement :

| A      | B   | C                  | D |
|--------|-----|--------------------|---|
| Name   | Age | Department         |   |
| Kannan | 22  | IT                 |   |
| Rani   | 25  | HR                 |   |
| Raji   | 24  | Customer Care      |   |
| Bima   | 27  | Project Management |   |
| Pooja  | 29  | Operations         |   |

C2

A B C D E F G H I J

|   | Name   | Age | Department         | D | E | F | G | H | I | J |
|---|--------|-----|--------------------|---|---|---|---|---|---|---|
| 1 | Kannan | 22  | IT                 |   |   |   |   |   |   |   |
| 2 | Rani   | 25  | HR                 |   |   |   |   |   |   |   |
| 3 | Raji   | 24  | Customer Care      |   |   |   |   |   |   |   |
| 4 | Bima   | 27  | Project Management |   |   |   |   |   |   |   |
| 5 | Pooja  | 29  | Operations         |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
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| 2 |        |     |                    |   |   |   |   |   |   |   |
| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
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| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
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| 3 |        |     |                    |   |   |   |   |   |   |   |
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| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
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| 9 |        |     |                    |   |   |   |   |   |   |   |
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| 9 |        |     |                    |   |   |   |   |   |   |   |
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| 4 |        |     |                    |   |   |   |   |   |   |   |
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| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
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| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
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| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
| 1 |        |     |                    |   |   |   |   |   |   |   |
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| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
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| 1 |        |     |                    |   |   |   |   |   |   |   |
| 2 |        |     |                    |   |   |   |   |   |   |   |
| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
| 1 |        |     |                    |   |   |   |   |   |   |   |
| 2 |        |     |                    |   |   |   |   |   |   |   |
| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
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| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
| 1 |        |     |                    |   |   |   |   |   |   |   |
| 2 |        |     |                    |   |   |   |   |   |   |   |
| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
| 1 |        |     |                    |   |   |   |   |   |   |   |
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| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
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| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
| 1 |        |     |                    |   |   |   |   |   |   |   |
| 2 |        |     |                    |   |   |   |   |   |   |   |
| 3 |        |     |                    |   |   |   |   |   |   |   |
| 4 |        |     |                    |   |   |   |   |   |   |   |
| 5 |        |     |                    |   |   |   |   |   |   |   |
| 6 |        |     |                    |   |   |   |   |   |   |   |
| 7 |        |     |                    |   |   |   |   |   |   |   |
| 8 |        |     |                    |   |   |   |   |   |   |   |
| 9 |        |     |                    |   |   |   |   |   |   |   |
| 0 |        |     |                    |   |   |   |   |   |   |   |
| 1 |        |     |                    |   |   |   |   |   |   |   |

- 9. Create a small numerical dataset and apply the following functions:** •  
**AVERAGE • MAX • MIN** (Include a screenshot showing the formulas and their results.)

F2       $=\text{AVERAGE}(\text{D2:D9})$

|    | A      | B   | C                  | D      | E       | F       |
|----|--------|-----|--------------------|--------|---------|---------|
| 1  | Name   | Age | Department         | Salary |         |         |
| 2  | Kannan | 22  | Logistics          | 15000  | Average | 23812.5 |
| 3  | Rani   | 25  | HR                 | 30000  | Min     |         |
| 4  | Raji   | 24  | Customer Care      | 23000  | Max     |         |
| 5  | Bima   | 27  | Project Management | 21000  |         |         |
| 6  | Pooja  | 29  | Operations         | 38000  |         |         |
| 7  | Renu   | 22  | Customer Care      | 19500  |         |         |
| 8  | Gopal  | 21  | Project Management | 18000  |         |         |
| 9  | Rekha  | 23  | Operations         | 26000  |         |         |
| 10 |        |     |                    |        |         |         |

F3       $=\text{MIN}(\text{D2:D9})$

|    | A      | B   | C                  | D      | E       | F       |
|----|--------|-----|--------------------|--------|---------|---------|
| 1  | Name   | Age | Department         | Salary |         |         |
| 2  | Kannan | 22  | Logistics          | 15000  | Average | 23812.5 |
| 3  | Rani   | 25  | HR                 | 30000  | Min     | 15000   |
| 4  | Raji   | 24  | Customer Care      | 23000  | Max     |         |
| 5  | Bima   | 27  | Project Management | 21000  |         |         |
| 6  | Pooja  | 29  | Operations         | 38000  |         |         |
| 7  | Renu   | 22  | Customer Care      | 19500  |         |         |
| 8  | Gopal  | 21  | Project Management | 18000  |         |         |
| 9  | Rekha  | 23  | Operations         | 26000  |         |         |
| 10 |        |     |                    |        |         |         |
| 11 |        |     |                    |        |         |         |
| 12 |        |     |                    |        |         |         |
| 13 |        |     |                    |        |         |         |
| 14 |        |     |                    |        |         |         |

The screenshot shows a Microsoft Excel spreadsheet with the following data:

|    | A      | B   | C                  | D      | E       | F       | G |
|----|--------|-----|--------------------|--------|---------|---------|---|
| 1  | Name   | Age | Department         | Salary |         |         |   |
| 2  | Kannan | 22  | Logistics          | 15000  | Average | 23812.5 |   |
| 3  | Rani   | 25  | HR                 | 30000  | Min     | 15000   |   |
| 4  | Raji   | 24  | Customer Care      | 23000  | Max     | 38000   |   |
| 5  | Bima   | 27  | Project Management | 21000  |         |         |   |
| 6  | Pooja  | 29  | Operations         | 38000  |         |         |   |
| 7  | Renu   | 22  | Customer Care      | 19500  |         |         |   |
| 8  | Gopal  | 21  | Project Management | 18000  |         |         |   |
| 9  | Rekha  | 23  | Operations         | 26000  |         |         |   |
| 10 |        |     |                    |        |         |         |   |
| 11 |        |     |                    |        |         |         |   |
| 12 |        |     |                    |        |         |         |   |
| 13 |        |     |                    |        |         |         |   |

The formula bar at the top shows `=MAX(D2:D9)`. The cell F4 contains the result of this formula, which is 38000. The cell F4 is highlighted with a green border.

**10. You're working with a dataset that contains missing values. As a Data Scientist, explain how you'd detect and handle missing data using Excel. Mention tools like: • Go To Special • ISBLANK • COUNTBLANK (Include a screenshot showing how blanks are identified or processed.)**

#### Using Go to Special:

1. Select the data range
2. Press **Ctrl + G** (Go To)
3. Click **Special**
4. Select **Blanks** → **OK**

|    | A      | B   | C                  | D      |
|----|--------|-----|--------------------|--------|
| 1  | Name   | Age | Department         | Salary |
| 2  | Kannan | 22  | Logistics          | 15000  |
| 3  | Rani   | 25  | HR                 | 30000  |
| 4  | Raji   |     | Customer Care      |        |
| 5  | Bima   | 27  | Project Management | 21000  |
| 6  | Pooja  | 29  | Operations         | 38000  |
| 7  | Renu   |     | Customer Care      |        |
| 8  | Gopal  | 21  | Project Management | 18000  |
| 9  | Rekha  | 23  | Operations         | 26000  |
| 10 |        |     |                    |        |
| 11 |        |     |                    |        |

### Using Is Blank:

Check cell-by-cell if a value is missing.

Syntax:

=ISBLANK(A2)

|   | A      | B   | C                  | D      | E     | F |
|---|--------|-----|--------------------|--------|-------|---|
| 1 | Name   | Age | Department         | Salary |       |   |
| 2 | Kannan | 22  | Logistics          | 15000  | FALSE |   |
| 3 | Rani   | 25  | HR                 | 30000  | FALSE |   |
| 4 | Raji   |     | Customer Care      |        | TRUE  |   |
| 5 | Bima   | 27  | Project Management | 21000  | FALSE |   |
| 6 | Pooja  | 29  | Operations         | 38000  | FALSE |   |
| 7 | Renu   |     | Customer Care      |        | TRUE  |   |
| 8 | Gopal  | 21  | Project Management | 18000  | FALSE |   |
| 9 | Rekha  | 23  | Operations         | 26000  | FALSE |   |
| 0 |        |     |                    |        |       |   |
| 1 |        |     |                    |        |       |   |
| 2 |        |     |                    |        |       |   |
| 3 |        |     |                    |        |       |   |

### Using Countblank:

Count how many blanks exist in a range.

Syntax:

=COUNTBLANK(B2:B10)

The screenshot shows a Microsoft Excel interface. In the formula bar at the top, the cell reference 'D11' is selected, followed by a dropdown arrow. To the right of the dropdown are three icons: a red 'X', a green checkmark, and a fx button. The formula '=COUNTBLANK(A1:D9)' is entered into the formula bar. Below the formula bar is a table with 9 rows and 4 columns. The columns are labeled A, B, C, and D. The rows are numbered 1 through 9. The table has yellow headers for columns A, B, and C, and a green header for column D. The data in the table is as follows:

|   | Name   | Age | Department         | Salary |
|---|--------|-----|--------------------|--------|
| 1 | Kannan | 22  | Logistics          | 15000  |
| 2 | Rani   | 25  | HR                 | 30000  |
| 3 | Raji   |     | Customer Care      |        |
| 4 | Bima   | 27  | Project Management | 21000  |
| 5 | Pooja  | 29  | Operations         | 38000  |
| 6 | Renu   |     | Customer Care      |        |
| 7 | Gopal  | 21  | Project Management | 18000  |
| 8 | Rekha  | 23  | Operations         | 26000  |
| 9 |        |     |                    |        |
| 0 |        |     |                    |        |
| 1 |        |     |                    | 4      |
| 2 |        |     |                    |        |
| 3 |        |     |                    |        |