Class -8 Chapter -2
MS Excel--formulas and functions

A. Tick the correct option

1. **In Excel, all formulas must start with:**
   ✓**c. = sign**
2. **To find the largest value or number in the given range of cells:**
   ✓**b. Max**
3. **_____ function adds all the numbers in a range of cells.**
   ✓**b. Sum**
4. **Functions are the predefined formulas in Excel.**
   Answer: c. **Formulas**
5. **_____ is a mathematical expression that lets you perform calculations.**
   Answer: a. **Formula**

B. Fill in the Blanks:

1. **Functions** are inbuilt formulas in Excel.
2. The MIN function returns the **lowest** number or value in a range of cells.
3. **$** symbol is used to lock either a row or column in mixed referencing.
4. You can use the Sort option from the **Data** tab.
5. When we enter the incorrect data type, **#Value!** error occurs.

C. True or False:

1. **T** - Text function is used to perform operations on strings.
2. **F** - In combined referencing, the cell address remains locked. (It remains partially locked.)
3. **T** - Name box can be used to name a range of cells.
4. **F** - Excel does not allow you to use functions and formulas together. (Excel allows both.)
5. **F** - #Name! error is received when the value in a cell exceeds the column width. (This happens due to an invalid function name or reference.)

1. What is Cell Reference? Explain All the Types of Cell References.

A **cell reference** in Excel refers to the address of a cell used in formulas to perform calculations. It allows Excel to fetch the value stored in a particular cell.

Types of Cell References:

1. **Relative Cell Reference:**
   - Changes when copied to another location.
   - Example: =A1+B1 (If copied to the next row, it becomes =A2+B2).
2. **Absolute Cell Reference:**
   - Remains fixed even when copied.
   - Uses $ sign before column and row.
   - Example: =$A$1+$B$1.
3. **Mixed Cell Reference:**
   - Either the column or the row remains fixed while the other changes.
   - Example: =$A1+B$1 (Here, column A is fixed, and row 1 is fixed for B).

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2. How Can You Use a Range in Excel? Explain All the Methods Used for It.

A **range** in Excel refers to a group of selected cells. It can be a single row, column, or multiple rows and columns.

Methods to Use a Range in Excel:

1. **Using Cell Reference:**
   - Example: =SUM(A1:A5) (Adds values from A1 to A5).
2. **Using Named Ranges:**
   - Assigning a name to a range and using it in formulas.
   - Example: Name A1:A5 as “Marks” and use =SUM(Marks).
3. **Using Range in Formulas:**
   - Example: =AVERAGE(A1:A5), =MAX(A1:A5), etc.
4. **Using Drag Selection:**
   - Click and drag over multiple cells to select a range.

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3. Define a Function and Its Categories. Write About the Commonly Used Functions in Brief.

A **function** in Excel is a predefined formula that performs calculations based on given inputs.

Categories of Functions:

1. **Mathematical Functions:**
   - SUM(range): Adds numbers.
   - ROUND(value, decimal_places): Rounds a number.
2. **Logical Functions:**

- IF(condition, value_if_true, value_if_false): Checks a condition.
- AND(condition1, condition2): Returns TRUE if both conditions are true.

3. **Text Functions:**
   - LEFT(text, num_chars): Extracts characters from the left.
   - CONCATENATE(text1, text2): Combines text.
4. **Date & Time Functions:**
   - TODAY(): Returns the current date.
   - NOW(): Returns the current date and time.
5. **Lookup & Reference Functions:**
   - VLOOKUP(value, table, col_index, FALSE): Searches for a value in a table.
   - HLOOKUP(value, table, row_index, FALSE): Searches in a row.

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4. Explain All the Formula Errors Which Occur While Working on Excel with Example.

1. **#DIV/0! Error:**
   - Occurs when dividing a number by zero.
   - Example: =A1/0.
2. **#NAME? Error:**
   - Occurs due to a misspelled function name.
   - Example: =SUMM(A1:A5) instead of =SUM(A1:A5).
3. **#VALUE! Error:**
   - Occurs when an incorrect data type is used in a formula.
   - Example: ="text"+10.
4. **#REF! Error:**
   - Occurs when a referenced cell is deleted.
   - Example: If A1 is deleted in =A1+B1, it shows #REF!.
5. **#N/A Error:**
   - Occurs when a lookup function cannot find a value.
   - Example: =VLOOKUP(100, A1:B5, 2, FALSE) (if 100 is not found).
6. **#NUM! Error:**
   - Occurs due to invalid numeric calculations.
   - Example: =SQRT(-1).
7. **#NULL! Error:**
   - Occurs when an incorrect range operator is used.
   - Example: =SUM(A1 A5) instead of =SUM(A1:A5).

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5. Write a Short Note on the Following:

a. Sorting

Sorting arranges data in ascending or descending order.

Steps to Sort in Excel:

1. Select the range of data.
2. Go to the **Data** tab and click **Sort**.
3. Choose the column to sort by.
4. Select **Ascending (A-Z)** or **Descending (Z-A)** order.
5. Click **OK**.

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b. Filtering

Filtering allows users to display specific data based on criteria.

Steps to Apply Filtering:

1. Select the dataset.
2. Go to the **Data** tab and click **Filter**.
3. Click on the filter dropdown in the column header.
4. Choose criteria (e.g., filter by value, condition, etc.).
5. Click **OK**.

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c. Conditional Formatting

Conditional Formatting highlights cells based on conditions (e.g., color-coding high/low values).

Steps to Apply Conditional Formatting:

1. Select the data range.
2. Go to the **Home** tab and click **Conditional Formatting**.
3. Choose a rule (e.g., **Highlight Cells Rules** > **Greater Than**).
4. Enter the condition and select formatting style.
5. Click **OK**.