

①

range]

2. 2

- region \Rightarrow Sumif

region \Rightarrow storm

Ex: $\text{SUMIFS}(H:H, D:D, "Sales", E:E, "South", H:H, ">10,000")$ ^②
 Sumrange [criteria, range] [criteria2, criteria range2]

find the total Salaries paid to employees in sales department in South region earning Salary more than 10,000.

④ Count-function :- It counts the no of cells containing no's in the cells, and there is also count A-function which counts the no of cells containing numbers as well as text.

Count A \Rightarrow "Count-Anything"

Syntax —
 $= \text{COUNT}(A1, A3, A9)$
 $= \text{COUNT}(A1, A33)$
 $= \text{COUNTA}(A1, A3, A6, A9)$

Ex: Count \Rightarrow Count Numbers $\Rightarrow = \text{COUNT}(A:A) = 100$ cells
 Count A \Rightarrow Count-text & Num $\Rightarrow = \text{COUNTA}(E:E) = 101$ cells
 Include this heading and Count. \leftarrow [Salary Column]

If we want to exclude it $\Rightarrow = \text{COUNTA}(E:E) - 1 \Rightarrow 100$ cells

⑤ COUNTIF :- it can be used to count cells with dates, numbers, and text that match specific criteria in a cell range that meet a particular condition.

Syntax : $= \text{COUNTIF}(\text{range}, \text{criteria})$

Ex : $= \text{COUNTIF}(D:D, "admin")$
 \downarrow
 [Admin] \rightarrow Department > Counts-Howmany are Admins in dept.

⑥ CountIFS function :- which Counts the no of cells in a range, that meets a single or multiple criteria. it can be used as worksheet-function (WS) in Excel.

Syntax — = COUNTIFS (range1, Criteria1, range2, Criteria2).

Ex = =COUNTIFS(D:D, "mktg", H:H, ">20,000")

↳ Department

find the no of employees in marketing department with Salaries

more than 20,000

⑦ Average function :- It returns the average (Arithmetic mean) of the arguments which can be - numbers or names, array or references that contain numbers.

Syntax — = AVERAGE (Argument1, Arg2, Arg3 ----)
= AVERAGE (Range1, range2, range3 ----)

Ex → =Average(A:A) ⇒ gives average of entire cell.

Average A, Average if contain similar functionality of Sum function.

Syn — =Averageif (range, criteria, [average-range]).

Ex → = AVERAGEIF ("E:E", "South", H:H)

find the Average Salary paid to employees in South region.

8. Round function :- This function rounds the decimal places of the number by the specified number.

Syntax — `=ROUND(argument, Num-digit)`

Ex

$= \text{Round}(-12, 1) \Rightarrow 143.001 = 143.0$

$= \text{Round}(-12, 2) \Rightarrow 143.001 = 143.00$

it contains Roundup, Rounddown functions as well.

9. Concatenate function :-

CONCATENATE function joins a list or range of strings.

Syntax → = CONCATENATE (Text1, Text2, Text3...)

Ex: $\text{CONCATENATE}(E_1, E_2)$

- Contain Last Name.
- Contain first Name

Abdul Ameer \Rightarrow Abdull Ameer

If we want space inbetween two columns \Rightarrow

$$= \text{CONCATENATE}(E1, " ", E2)$$

$\text{Abdul Ameer} \Rightarrow \text{Abdul Ameer.}$

10. INDEX function :-

Return the values or references of the cell at the Intersection of a particular row and column in the given range.

Syntax - $\text{INDEX}(\text{range}, \text{row number}, \text{column number})$

↓
array [Entire Region of table]
Selection Region

Ex: $\text{INDEX}(A1:D7, 3, 4)$

OFFSET FUNCTION :- Return a references to a range that is given number of rows and columns from a given reference.

Syntax — $\text{OFFSET}(\text{offset}, \text{row-number}, \text{clmn-no}, [\text{height}], [\text{width}])$

Height, width are used for calculation with offset like Sum and avg.

Match function :- Return the relative position of an item in an array that matches a specified value in a specified order.

Syntax — $\text{Match}(\text{lookup value}, \text{lookup array}, \text{match type})$

lookup value can be a number | Text

lookup array is the range of cells

Match type can be 1, 0, or -1

IF Function :- check if the condition is met and return one value if true and another value is if false.

Syntax — $= \text{IF}(\text{Logic}, \text{value if True}, \text{value of false})$

Ex - $= \text{IF}(D2 = \text{"sales"}, 2000, 0)$
 \downarrow logical Test \downarrow [value if True] \uparrow [value if false]

IFS function :- It is simply nested if function, where multiple if conditions are appeared.

Syntax — $\text{IFS}(\text{logical test 1}, \text{value if true 1}, [\text{1-test 2}, \text{v if T 2}], \dots)$

Ex - $\text{IFS}(\underbrace{H2 < 5000}_{\text{Test I}}, "< 5k", \underbrace{H2 < 10,000}_{\text{Test II}}, "< 10k", \underbrace{H2 < 20,000}_{\text{Test III}}, "< 20k")$

AND Function :- AND function checks if all the logical arguments inside the function are true and returns the true value if they are true and false value if one of them is false.

Syntax — =AND(logic1, [logic2], [logic3])

EX :- =AND(D2="sales", E2="East") \Rightarrow True
if logic1, logic2 \Rightarrow True \Rightarrow True
if logic1 \rightarrow True, logic2 = False \Rightarrow False

NOTE :- In AND-function we have to satisfy both the conditions but in "OR-function" we have to satisfy any one of them.

TODAY function :- it returns the current date.

Syntax — =TODAY()

Conditional formatting :- Conditional formatting allows you automatically apply formatting such as colors, icons and data bars, to one or more cells based on the value.

- ① highlight duplicate values (available in sheets)
- ② highlight text that contain "Specific Text"
- ③ Highlight cells with values greater than, less than, between a particular value.
- ④ Using Data bars and color sets.

IF ERROR FUNCTION :- This function used to identify errors in Excel. like user can defined the output he/she needs. When ever the function encounters error it returns the output specified by user otherwise return the cell value.

Syntax — =IFERROR (cell address, "Output").

IFNA FUNCTION :- It returns value user specifies in the expression. When ever the function encounters the N/A Error, otherwise function return cell value.

=IFNA (cell address, "Output").

Text function :- It contain several functions in it, works on text format. Such as — ① Lower ② Upper ③ Proper ④ Mid ⑤ Left ⑥ Right ⑦ Len functions.

Ex: Ameer \Rightarrow Syn = ① Lower \Rightarrow =LOWER(A2) = ameer
 ② Upper \Rightarrow =UPPER(A2) \Rightarrow AMEER
 =PROPER(A2) \Rightarrow Ameer
 =LEFT(A2) \Rightarrow Ameer
 =LEN(A2) \Rightarrow 5
 =MID(A2,3) \Rightarrow er (Ame after)
 =RIGHT(A2) \Rightarrow meer

Exact function :- It return proper text only [i.e. Case Sensitive]. The text format in both cells true then only true otherwise else.

Syntax — =EXACT (Text1, Text2)

Ex: Ameer Ameer \Rightarrow =EXACT (A1,B1) \Rightarrow FALSE
 AMEER Ameer \Rightarrow FALSE
 ameer ameer \Rightarrow TRUE

RANDBETWEEN function :-

(8)

Returns a Random Number between the Specified values.

Syntax — =RANDBETWEEN(Celladdress1, Celladdress2)
=RANDBETWEEN(Celladdress, Value)

The value in cell address 2 has to be greater than value in cell 1.

NAME RANGES in Excel :-

Create Excel Names that refers to cells, a constant value, or formula, use names in formulas, or quickly select a named range.

Syntax — The Name box is located on the top left corner of a sheet, right above column headers.

Lookups :- Mainly we have two types of lookups available in Excel.

are — 1) Vlookup 2) Hlookup.

VLOOKUP FUNCTION : Commonly known as Vertical lookup function.

It helps lookup and return specific values from a column of table.

Syntax — =VLOOKUP(lookup value, Table, Index, Range lookup)

Lookup value → The value you need to lookup in the table.

Table → The table where you will be looking up the value.

Index → The column number in the table which will be used to return a value.

Range lookup → Looks for exact match.

VLOOKUP can be used for lookup values from tables present in a different excel too.

HLOOKUP FUNCTION : it is also known as horizontal lookup.

As similar to vlookup-function, it helps lookup and return specific values from row of a table.

Syntax — =HLOOKUP(lookup value, Table index, range lookup)

~~from~~ FORMULA AUDITING :-

1) Trace precedents and Dependents :

It helps user to identify ~~among~~ the cells which are used in the formula /function.

Precedents & Dependents - shows which cells affects the current value of the selected cell.

2) Error checking :-

It helps user to identify the cells where error has occurred.