T.Y.B.Com Sem-VI : 2020-21

COMPUTER SYSTEM & APPLICATION

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Syllabus Sem-VI

Module	Topic	Marks
I	E-Commerce	26
II & III	Advanced Ms-Excel	32
IV	Visual Basic	17
	Total	75

Module : II-Advanced Excel

Linking of Multiple Worksheet & Workbook

Linking means creating formulas that uses values from another worksheet/workbook

External Reference: A reference to another workbook cell/cell range/defined name. A formula contains an external reference is called as external reference formula. Syntax for external reference is
=[workbook Name]SheetName!CellAddress

Dependent Workbook: A workbook which contains the link to another workbook.

Source Workbook: A workbook that is source of information in an external reference formula.

Consider two worksheet

	A	B	C
1	ENO	DEPT	BASIC
2	111	IT	25000
3	112	SALES	35000
4	113	MKT	42000
5	114	HR	20000
6	115	SALES	28000
7	116	MKT	52000

Sheet1

	A	B	C	D
1	ENO	DA	HRA	NET
2	111			
3	112			
4	113			
5	114			
6	115			
7	116			

Sheet2

Module : II-Advanced Excel

Functions in Excel

IF ( ):
This functions is when the results are depend on certain specific condition.

It returns True value if condition is met otherwise false value.

Syntax is
=IF(condition, True value, False Value)
Ex-1
=IF(B2<18, "Minor", "Major")

Ex-2: To calculate commission @5% if total sales exceeds Rs.50000, otherwise 3% of total sales

=IF(A2>50000, A2*5%, A2*3%)

We can use more than one IF to obtain the result, called nested IF

We can use following logical function /operator
AND
OR
NOT

COUNTIF( ):
The **COUNTIF** function in **Excel** counts the number of cells that meet criteria you specify.
Syntax is
=COUNTIF(Range, condition)

Ex-1
=COUNTIF(B2:B8, "MALE")

Ex-2
=COUNTIF(B2:B10, ">25000")

SUMIF( ):
This function add the value of the cells in **Excel** which satisfies the given condition.
Syntax is
=SUMIF(Range, criteria, sum_range)
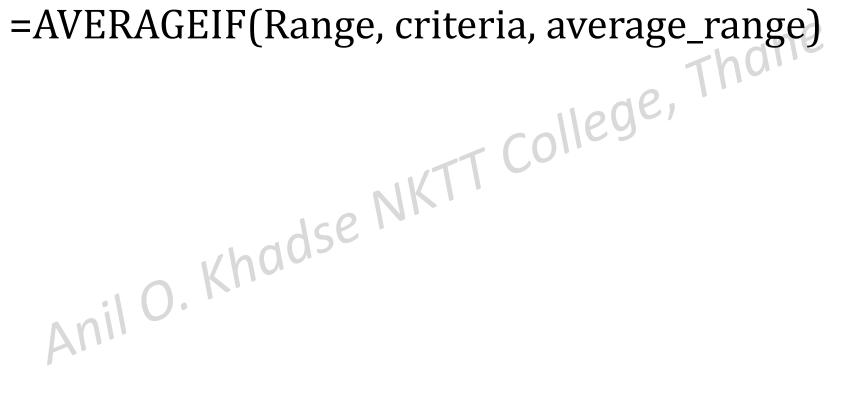
where
Range: group of cells containing values
Criteria : Condition
sum_range : it is optional if the condition on and sum range is same

AVERAGEIF( ):

This function used to find the average/ Arithmetic Mean of the numbers entered in the cells which satisfies the given condition.

Syntax is

=AVERAGEIF(Range, criteria, average_range)

Consider worksheet

	A	B	C
	A	B	C
1	NAME	GENDER	SALARY
2	MOHIT	M	42000
3	SONAL	F	55000
4	SUJAY	M	35000
5	PRIYA	F	32000
6	GAURAV	M	64000
7	MRUNAL	F	25000
8	ROHIT	M	28000

Write steps to
1. Find number of female
2. Find the total salary of male employees only.
3. Find total salary of those employees having salary more than 40000.
4. Find average salary of female employees.

Practical No-1 (Excel)

1. Enter the following data into worksheet

	A	B	C
1	NAME	GENDER	SALARY
2	MOHIT	M	42000
3	SONAL	F	55000
4	SUJAY	M	35000
5	PRIYA	F	32000
6	GAURAV	M	64000
7	MRUNAL	F	25000
8	ROHIT	M	28000

Write steps to

i.   Find number of female in cell D2.

ii.   Find the total salary of male employees only in D3

iii. Find total salary of those employees having salary more than 40000 in E2

iv.   Find average salary of female employees in E3

i) To find number of female
➢Click at D2 and enter formula
➢= COUNTIF(B2:B8, "F")

ii) Find the total salary of male employees only in D3
➢Click at D3 and enter formula
➢= SUMIF(B2:B8, "M", C2:C8)

iii) Find total salary of those employees having salary more than 40000 in E2
➢Click at E2 and enter formula
➢= SUMIF(C2:C8, ">40000")

iv) Find average salary of female employees in E3

➢Click at E3 and enter formula

➢= AVERAGEIF(B2:B8, "F", C2:C8)

2. The following data has been entered in a worksheet:

	A	B	C	D	E
1	NAME	BASIC	HRA	DA	
2	NIKITA	20000			
3	AMOL	15000			
4	POOJA	12000			
5	ROHIT	10500			
6	MINAL	25000			
7	SONAM	30000			

Write the steps to calculate:

i) HRA as 35% of basic salary whenever basic salary is 15000 or less otherwise 40% of basic salary.

ii) DA as 107% of basic salary

iii) Tax as 10% of Basic + HRA +DA

To Calculate HRA

➢**Click at C2 and enter formula**

   = IF(B2<=15000,B2*35%,B2*40%)

➢**Click at C2 and drag the fill handle till C7**

To Calculate DA

➢**Click at D2 and enter formula**

   = B2*107%

➢**Click at D2 and drag the fill handle till D7**

To calculate Tax

➢**Click at E2 and enter formula**

   = (B2+C2+D2)*10%

 ➢**Click at E2 and drag the fill handle tillE7**

3. Enter the following data into worksheet

	A	B	C	D	E
1	NAME	BASIC	DA	HRA	GROSS
2	KIRAN	20000			
3	VIJAYA	25000			
4	PRIYA	18000			
5	SHARVARI	35000			
6	ROHIT	30000			
7	AMIT	40000			
8	MOHINI	32000			

Write steps for following

i) To calculate DA @65% if the basic salary is less than 35000, otherwise 75% of basic salary

ii)To calculate HRA @35% of basic salary if exceeds Rs. 40000, otherwise 55% of basic salary
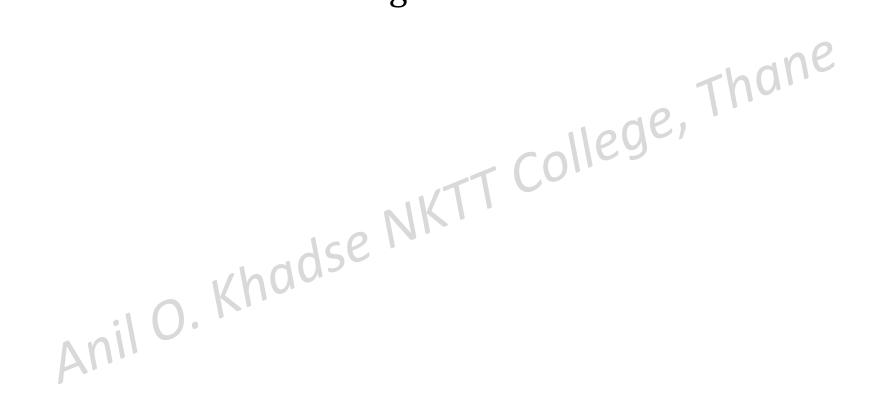
iii) Gross salary of all employees

Ans: i)To calculate DA
➢ Click at C2 and Enter formula
=IF(B2<35000,B2*65%,B2*75%)
➢ Click at C2 and drag the fill handle till C8

ii)To calculate HRA
➢ Click at D2 and Enter formula
=IF(B2>40000,B2*35%,B2*55%)
➢ Click at D2 and drag the fill handle till D8

ii)To calculate GROSS
- ➢ Click at E2 and Enter formula
  =SUM(B2:D2)
- ➢ Click at E2 and drag the fill handle till E8

4. Enter the following data into worksheet

	A	B	C	D	E	F
1	NAME	CITY	SALES	COMM	BONUS	TOTAL
2	ANUJ	MUMBAI	120000			
3	PRITI	PUNE	360000			
4	KAJOL	BANGLORE	275000			
5	AMOL	HYDRABAD	410000			
6	ROHIT	PUNE	65000			
7	PALLAVI	BANGLORE	100000			

Write steps for following

i) To compute Commission @8% of sale whenever sales is below Rs. 75000, otherwise 10% of sales in column D

ii) To compute Bonus@2% of sales for sales upto Rs 50,000, otherwise @5% of sales in column E

Ans: i)To calculate Commission
➢ Click at D2 and Enter formula
  =IF(C2<75000,C2*8%,C2*10%)
➢ Click at D2 and drag the fill handle till D7

ii)To calculate Bonus
➢ Click at E2 and Enter formula
  =IF(C2<50000,C2*2%,C2*5%)
➢ Click at E2 and drag the fill handle till E7

ii)To calculate Total earning
- ➢ Click at F2 and Enter formula
  =D2+E2
- ➢ Click at F2 and drag the fill handle till F7

End of Practical 1

Practical No-2 (using nested If)

1. Enter the following data into worksheet

	A	B	C	D	E
1	NAME	SALES	COMM	BONUS	TOTAL
2	ANUJ	85000			
3	PRITI	65000			
4	KAJOL	250000			
5	AMOL	125000			
6	ROHIT	280000			
7	PALLAVI	75000			

Write steps to,

i)   Calculate Commission in column C using following policy

Sales Amount	Rate of commission
First Rs 50,000	8%
Next Rs 75,000	10%
Excess	12%

➤ Click at C2 and enter formula

=IF(B2<=50000,B2*8%, IF(B2<=125000, 4000+(B2-50000)*10%, 4000+7500+(B2-125000)*12%))

➤ Click at C2 and drag fill handle till C7

ii) Calculate bonus as 4% of the total sales whenever the sales is above Rs 200000 otherwise no bonus is given.

➢ Click at D2 and Enter formula
   =IF(B2>200000,B2*4%, 0)
➢ Click at D2 and drag the fill handle till D7

iii) Calculate total earning as Commission + bonus
➢ Click at E2 and enter formula
➢ =C2+D2
➢ Click at E2 and drag fill handle till E7

2. Consider following worksheet

	A	B	C	D	E	F	G
1	ROLLNO	M1	M2	M3	M4	AVERAGE	RESULT
2	11	55	76	74	70		
3	12	59	60	62	66		
4	13	65	75	86	77		
5	14	48	50	40	77		
6	15	55	68	68	50		
7	16	70	74	73	78		
8	17	63	65	58	53		
9	18	43	52	60	50		

Write steps to,

i)   Calculate Average marks in column F

➢   Click at F2 and Enter formula
     =AVERAGE(B2:E2)

➢   Click at F2 and drag the fill handle till F9

ii) Assign grade in column G as per following

Average Marks	Grade
80 or more	O
60 or more but below 80	A
Less than 60	B

➢   Click at G2 and enter formula
➢   =IF(F2>=80, "O", IF(F2>=60, "A", "B"))
➢   Click at G2 and drag fill handle till G9

3. Consider following worksheet

	A	B	C	D	E
1	NAME	INCOME	INCOME TAX	SURCHARGE	TOTAL TAX
2	RUCHA	150000			
3	SUMIT	275000			
4	SAYLI	650000			
5	RAJ	1250000			
6	MUMTAZ	730000			
7	DILIP	220000			
8	AMIT	940000			

Write steps to,

i) Obtain income tax in column in column C using following slab

Taxable income	Rate of tax
First Rs 2,50,000	NIL
Next Rs 2,50,000	10%
Next Rs 500000	20%
Excess	30%

➢ Click at C2 and enter formula
= IF(B2<=250000,0, IF(B2<=500000, 0+(B2-250000)*10%,

   IF(B2<=1000000,0+25000+(B2-500000)*20%,
   0+25000+100000+(B2-1000000)*30%)))

➢ Click at C2 and drag fill handle till C8

ii) Obtain surcharge in column in column D as 3% of income tax for those whose taxable income is above 800000.

- ➢ Click at D2 and enter formula
- ➢ =IF(B2>800000,C2*3%, 0)
- ➢ Click at D2 and drag fill handle till D8

ii) Obtain total Tax in column E
- ➢ Click at E2 and enter formula
  = C2+D3
- ➢ Click at E2 and drag fill handle till E8

End of Practical 2

String functions:

LEFT( )

RIGHT( )

MID( )

LEN( )

UPPER( )

LOWER( )

PROPER( )

TRIM( )

FIXED( ): Rounds a number to the specified number of decimal ,formats the number using period and commas, and returns the result as text.

=FIXED(Num , decimal , No. of commas)

Date functions:

TODAY( ): Returns current date in mm,dd/yyyy format

NOW( ) : Returns current date and time

DATE( ) : Display date based on three argument year, month day

TIME( ) : Returns the particular time

DAY( ) : Returns the numeric day of the month i.e 1,2,3,- - - -31

MONTH( ): Returns numeric value corresponding to month 1,2,- - 12

YEAR( ) : Returns the year

WEEKDAY( ): Returns the numeric day of week i.e 1,2,- - - 7

DAYS360( ) : Returns the no. of days between two dates based on 360
days in year

Statistical Functions:

COUNTA( ): Counts the numbers of non-empty cells or which contains values in a range

COUNTBLANK( ):Counts the numbers of empty cells within a range.

CORREL( ): used to calculate correlation coefficient between two ranges. =CORREL(A2:A8,B2:B8)

LARGE( ): Returns the kth largest value in the list
    =LARGE(Array, k)

SMALL( ) :Returns the kth smallest value in the list
    =SMALL(Array, k)

LOOKUP FUNCTIONS

LOOKUP( ) : This function is used to search a value in a single row / column of a data. It returns a value from the same position in second row / column.

Syntax is

=LOOKUP(lookup value, lookup range, result_range)

VLOOKUP( ) :[vertical lookup] This function is used to search a value in a in first column of a range of values and returns a value in the same row from another column in table.

Syntax is

=VLOOKUP(lookup value, table_range, col_no, range_lookup)

Where

Lookup value : value to search in first column it can be value or cell address

Table_range : it is two or more columns of data

Col_no   : The column number in table range from which the matching
           value must be returned.

Range_lookup: A logical value that specifies whether to find exact match or
              approximate match. TRUE means an approximate match
              and can be omitted. FALSE means to find exact match.

HLOOKUP( ) : This function is used to search a value in a in first row of a range of values and returns a value in the same column from another row in table.[horizontal searching]

Syntax is

=HOOKUP(lookup value, table_range, row_no, range_lookup)

Where

Lookup value : value to search in first row it can be value or cell address

Table_range : it is two or more columns of data

Row_no   : The row number in table range from which the matching
            value must be returned.

Range_lookup: A logical value that specifies whether to find exact match or
            approximate match. TRUE means an approximate match
            and can be omitted. FALSE means to find exact match.

Practical No-4 (Using LOOKUP)

1. Enter the following data into worksheet

	A	B	C	D	E	F	G	
1	NAME	DESG	HRA	DA		DESG	HRA	DA
2	TINA	CLERK				PEON	4000	5000
3	MEENA	MANAGER				CLERK	8000	10000
4	SONA	CLERK				MANAGER	15000	20000
5	MONA	MANAGER						
6	PRIT	PEON						
7	JEET	CLERK						
8	MEET	MANAGER						

Write steps to find HRA and DA using VLOOKUP. Policy table is given in range F2 :H4

To find HRA

➢Click at C2 and entered formula

=VLOOKUP(B2,$F$2:$H$4,2)

➢Click at C2 and drag the fill handle till C8

To find DA

➢Click at D2 and entered formula

=VLOOKUP(B2,$F$2:$H$4,3)

➢Click at D2 and drag the fill handle till D8

2. Enter the following data into worksheet

	A	B	C	D	E	F	G	H	I	J
1	RNO	MARKS	GRADE	RESULT		MARKS	0	40	70	80
2	21	85				GRADE	F	C	B	A
3	25	75				RESULT	FAIL	PASS	SECOND	FIRST
4	35	35								
5	40	44								
6	45	78								
7	47	98								
8	50	71								

Write steps to find GRADE and Result using HLOOKUP. Policy table is given in range G1 :J3

To find GRADE

➤Click at C2 and entered formula

=HLOOKUP(B2,$G$1:$J$3,2)

➤Click at C2 and drag the fill handle till C8

To find RESULT

➤Click at D2 and entered formula

=HLOOKUP(B2,$G$1:$J$3,3)

➤Click at D2 and drag the fill handle till D8

Filtering of data

Filtering of data means to display those rows which satisfy the given condition and hiding all others rows.

Auto Filter : used for simple filtering

Advanced Filter : used for complex filtering

Practical No-5 (Filtering data)

1.Enter the following data into worksheet

	A	B	C	D	E
1	NAME	GENDER	AGE	CITY	SALES
2	RUCHA	F	23	MUMBAI	450000
3	SUMIT	M	26	PUNE	375000
4	SAYLI	F	25	NASIK	560000
5	RAJ	M	30	KOLKATA	780000
6	MUMTAZ	F	28	PUNE	320000
7	DILIP	M	32	NASIK	950000
8	AMIT	M	27	MUMBAI	640000

Write the steps for the following

i) To display only those records belongs to MUMBAI

➢ Click anywhere in data

➢ From HOME Tab select Sort & Filter.

➢ Select Filter, Drop down arrow appears in front of each heading.

➢ Click on the drop down arrow of City and from text filter select 'equals'.

➢ Type 'MUMBAI' in the dialog box

➢ Click on ok.

ii) To display only those rows where sales is more than Rs 500000

➢ Click anywhere in data

➢ From HOME Tab select Sort & Filter.

➢ Select Filter, Drop down arrow appears in front of each heading.

➢ Click on the drop down arrow of SALES and from Number filter select greater than , dialog box appears

➢ Type 500000 in the dialog box

➢ Click on ok.

iii) To display only those rows where sales is more than Rs 500000 and less than 800000.

➢ Click anywhere in data

➢ From HOME Tab select Sort & Filter.

➢ Select Filter, Drop down arrow appears in front of each heading.

➢ Click on the drop down arrow of SALES and from Number filter select greater than , dialog box appears

➢ Type 500000 in the dialog box

➢ Click at AND , Select Less Than

➢ Type 800000 and click at OK

iv) To display only those records whose name begins with R

➢   Click anywhere in data

➢ From HOME Tab select Sort & Filter.

➢ Select Filter, Drop down arrow appears in front of each heading.

➢ Click on the drop down arrow of NAME and from Text filter select begins with , dialog box appears

➢ Type R in the dialog box

➢ Click at OK

End of Practical - 5

What If Analysis

Scenario Manager:

Create different groups of values or scenario and can be switch between them.

Used in budgeting to determine how change in values.

It is available in DATA Tab Under What If Analysis

Goal Seek:

It is used to find the single unknown value using the known values

It is available in DATA Tab Under What If Analysis

Practical No-6 (What If Analysis)

1. The amount spent for various items during the year are entered in the worksheet.

	A	B	C	D
1	Items	Costs		
2	Machinery	60000		
3	Carriage	8000		
4	Transport	30000		
5	Office equipment	6000		
6	Postage	7000		
7	Misc	3000		
8	Generator	5000		
9	Total			

Prepare scenario where there is an increase s follows

i) Machinery increases to 80,000, Carriage increase to 90000 and postage increases to 8000.

ii) Carriage increases to 10000. office equipment increases to 7000 & postage increases to 9000.

i) To create scenario-1
➢ Click at B9 and enter =SUM(B2:B8)
➢ Click at Data Tab and select What –If Analysis
➢ Scenario manager dialog box appears
➢ Click at ADD, Type the name of scenario as "Scenario-1"
➢ In changing cell type B2:B8 and click at ok
➢ Scenario values dialog box appears type as
     $B$2 =80000, $B$3 = 9000 and $B$6=8000

ii) Again click at ADD Type the name Scenario-2 and click at ok

➢ Scenario values dialog box appears type as
   $B$3 =10000, $B$5 = 7000 and $B$6=9000
➢ Click on ok
➢ Click on summary and type B9 in Result cell
➢ Click on ok

2. Consider following worksheet

	A	B	C	D
1	Variable	value		
2	A	12		
3	B			
4	C	28		
5				

Using Goal seek write steps to find the value of B such that total is 65

➢ Click at B5 and enter =SUM(B2:B4)
➢ Click at Data Menu and select Goal Seek from What If Analysis
➢ In Set Cell type B5
➢ In To Value type 65
➢ By changing cell B3 & click at Ok

3. Consider following worksheet

	A	B	C	D
1	Sales figure			
2	Item sold	950		
3	Profit per unit	15		
4	profit	14250		

What should be the profit per unit to achieve the total profit of Rs, 20000

- ➢ Click at B4 and enter =B2*B3
- ➢ Click at Data Menu and select Goal Seek from What If Analysis
- ➢ In Set Cell type B4
- ➢ In To Value type 20000
- ➢ By changing cell B3 & click at Ok

End of Practical

Solver

It is what –If Analysis Tool which find optimum value.

It is used to find more than two or more unknown values

Solver is an Add in and available in Data Tab

The unknown values to be obtained may or may not have restriction.

You can install by selecting options from file Tab

Practical No-7 (Solver)

1. Enter the following data into worksheet

	A	B	C	D
1	Product	PRICE	QTY	INCOME
2	A	75	50	
3	B	110	45	
4	C	80	100	
5	D	250	50	
6				

Write the steps i) To find total income in D6
ii)Using Solver find how much quantity of A,B,C and D should be sold in order to achieve total income of Rs 80000

To find total income in D6

Click at D2 and entered =B2*C2 & Click at D2 ,drag till D5

➢ Click at B6 and enter =SUM(D2:D5)

➢ Click at Data Tab

➢ Select Solver, solver Parameter dialog box appear
    In set Objective type D6
    click at value of and type 80000
    By changing cell type C2:C5

➢ Click at Solve

➢ Click at keep solver solution

➢ Click at ok

2. The following table shows Quantity, Cost Price per unit (CPRICE) and Selling Price per unit (SPRICE).

	A	B	C	D	E	F	G
1	PODUCT	QTY	CPRICE	SPRICE	COST	SALES	PROFIT
2	P1	200	100	123			
3	P2	240	75	120			
4	P3	430	28	60			
5	P4	120	45	70			
6	P5	320	40	55			
7	P6	230	50	65			
8	P7	250	65	80			
9							

Write steps in Excel to calculate Cost in column E, Sales in column F, Profit in column G and Total Profit in G9 respectively. Write steps in Excel using Solver to find what the cost per unit should be in order to achieve the Total Profit of `1,25,000.

➤ Select E2 and type formula =B2*C2 and press enter.
➤ Select E2 and drag the fill handle till E8.
➤ Select F2 and type formula =B2*D2 and press enter.
➤ Select F2 and drag the fill handle till F8.

To Find Profit
➤ Select G2 and type =F2-E2 and press enter.
➤ Select G2 and drag the fill handle to copy formula till G8.

Total profit
➤ Select G9 and type =SUM (G2:G8) and press enter.

To find cost using Solver

➢ Click at G9 and from the Data Tab select Solver.

➢ In the dialog box in the 'Set objective' option the cell G9 is already selected.

➢ In the 'To' option select 'Value of' and type 125000 in the text box.

➢ In the option 'By Changing Variable cells' text box enter C2:C8

➢ Click on Solve.

➢ Click on Keep Solver solution

➢ Click on ok

3. A company makes four products Printers, LCD Monitor, Keyboards, and HD whose sale price is Rs 5000, Rs 3000 , Rs 1000 and Rs 3500 respectively. For the company to break even, it has to achieve a total sales of Rs 1,00,00,000 in a year. Using Solver find out the number of units of each of these four products that should be sold in order to meet the desired target sale, given that the company has the capacity to make maximum 2000, 1000, 3000 and 1800 units of each of these four products respectively in a year

	A	B	C	D	E
1	PODUCT	Price	Units	Sale Value	
2	Printer	5000			
3	LCD	3000			
4	Keyboard	1000			
5	HDD	3500			
6					

➢Click at D2 and Entered =B2*C2

➢Click at D2 and drag the fill handle till D5

➢Click at D6 and enter = SUM(D2:D5)

➢Click at DATA TAB and select Solver

➢ Solver Parameter dialog box appear

    In set Objective type D6

    click at value of and type 10000000

    By changing cell type C2:C5

- ➤ Click at ADD to add constraints

- ➤ C2<=2000, Click at ADD

- ➤ C3<=1000, Click at ADD

- ➤ C4<=3000, Click at ADD

- ➤ C5<=1800

- ➤ Click on ok

- ➤ Click on solve

- ➤ Click at keep solver solution

- ➤ Click at ok

Charts

Bar Diagram
Colum Diagram
Pie Chart
Line

Practical No-8 (Creating Charts)

1. Enter the following data into worksheet about expenses in Rs on different items

	A	B	C	D	E
1	ITEM	JAN	FEB	MARCH	APRIL
2	EDU	6000	6000	6000	6000
3	FOOD	15000	16000	17000	16000
4	RENT	45000	45000	16000	45000
5	CAR	12000	15000	13000	14000
6	TOTAL				

Write the steps to i)Find total expenses in each months in B6 to E6

ii) Create column chart for the expenses of all months

iii) Create 3-D pie chart for the March

iv) Line diagram for FEB and April

i) To find total exp
➢ Click at B6 and Enter formula =SUM(B2:B5)
➢ Click at B6 and drag fill handle to copy formula till E6
ii) To Create Bar Chart
➢ Select range A1:E5
➢ Click at INSERT Tab
➢ Select Bar and then select sub-type, Chart will be created
➢ Click on chart and from chart tool add Chart Name, Axis Name

iii) To create 3-D pie March
- ➢ Select range A2:A5 and D2:D5 by pressing CTRL key
- ➢ Click at INSERT Tab
- ➢ Select Pie chart and then select sub-type as 3 D, Chart will be created
- ➢ Click on chart and from chart tool add Chart Name

iv) To Create Line diagram
- ➢ Select range C1:C5 and E1: E5 by pressing CTRL key
- ➢ Click at INSERT Tab
- ➢ Select Line graph and then select sub-type, graph will be created
- ➢ Click on diagram and from chart tool add Chart Name, Axis title

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