

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6496

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Unique Paper Code : 2344001202

Name of the Paper : Data Analysis and Visualization using Spreadsheet

Name of the Course : **Generic Elective (NEP-UGCF-2022) Part – I**

Semester : II

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. **Section A** is compulsory.
3. Attempt any **four** questions from **Section B**.
4. Parts of a question must be answered together.
5. Use of scientific calculator is allowed.

Section A

1. a) Explain the VLOOKUP and HLOOKUP functions in Excel. Write their syntax and give one example of each. 5
b) Calculate Variance and Standard deviation of the given data: 2,4,6,8 3
c) Write a short note on the following: 3
(i) Array formulae
(ii) Linear regression
(iii) Data validation
d) What is DAX? Explain any two uses in data analysis. Give one example of a DAX formula. 4

- e) 3

Employee	Department	Salary
A	HR	20000
B	IT	30000
C	HR	25000
D	IT	40000
E	HR	22000

Employee	Salary
A	25000

- (i) Write a formula to calculate the average salary in the HR department.
(ii) Write a formula to calculate the highest salary in the IT department.

- f) How does a Pivot Table help in data analysis? Explain its advantages and steps to create it in Excel. 5
- g) Explain the data types in excel with an example. 2
- h) What are different types of cell referencing in Excel? Explain absolute and relative referencing with an example. 5

Section B
(Attempt Any Four Questions)

- 2 a) A company manufactures a product with the following details: 9
- Selling Price per unit = ₹50
 - Cost per unit = ₹30
 - Profit = (Selling Price – Cost) × Quantity
- The management wants to analyze different situations to improve profit.
- (i) Use Goal Seek to find how many units must be sold to earn a profit of ₹20,000.
- (ii) Use Scenario Manager to compare profits under three cases:
- Best Case: Quantity = 800
 - Average Case: Quantity = 500
 - Worst Case: Quantity = 200
- (iii) Create a Data Table to display how the profit changes when the quantity sold increases from 100 to 1000.
- b) The following data shows the relationship between advertising expenditure (X) and sales (Y): 6

Advertising (X)	Sales (Y)
10	25
20	45
30	65
40	85
50	105

- (i) Find the regression equation of Y on X using Excel.
- (ii) Estimate sales when advertising expenditure is 60.

3 a) A company records salaries as follows:

B	30000
C	28000
D	40000
E	35000
F	27000

- (i) Write the syntax of "COUNTIF" to count the employees earning more than 30000. 3
- (ii) Calculate the Range and Standard Deviation 4
- (iii) Explain how sorting and filtering can be used. Filtering high-salaried employees 4
- (iv) Write down the steps for creating a Line Chart. 4

4 a) Write the syntax and example of the following function in MS Excel 10

- (i) IF
- (ii) MAX
- (iii) MEDIAN
- (iv) SUMIF
- (v) AVERAGE

b) What do you mean by measures of central tendency? Explain its types with the following data: 10, 20, 30, 40, 50 5

5 a) Differentiate the following: 6

- (i) Normal and Uniform distribution
- (ii) Formula and Function
- (iii) SUBSTITUTE and REPLACE in excel

b) A company has created a Data Model in Excel containing a table named "Sales":

Product	Region	Year	SalesAmount
Laptop	North	2022	50000
Laptop	South	2022	40000
Mobile	North	2022	30000
Mobile	South	2022	35000
Laptop	North	2023	60000
Laptop	South	2023	45000
Mobile	North	2023	38000
Mobile	South	2023	42000

Retrieve and analyze data from the Data Model using CUBE functions.

- (i) Write a formula to extract total sales from the data model. 2
 - (ii) Write a formula to retrieve sales for Product = "Laptop" 2
 - (iii) Write a formula to retrieve sales for Region = "North" and Year = 2023. 3
 - (iv) Explain how CUBEVALUE helps in dynamic reporting. 2
- 6 a) Explain the concept of correlation. What is Karl Pearson's coefficient of correlation? Describe its properties and method of calculation. Also describe how to interpret correlation values with appropriate examples. 10
- b) What is a box plot? Explain the steps involved in creating a Box and Whisker chart in Excel. 5
- 7 A month-wise sales figure of the salesman is given in the following spreadsheet:

Salesman	Jan	Feb	Mar	Apr
A	10000	15000	20000	25000
B	12000	18000	22000	30000
C	8000	12000	15000	20000
D	13000	16000	24000	35000
E	14000	17000	20000	27000

Write a formula to:

- (i) Calculate the total sales of each salesman. 2
- (ii) Calculate the average monthly sales of each salesman. 2
- (iii) Calculate commission (5% if sales > 60000 else 3%) 3
- (iv) Calculate the maximum sale made by each salesman. 2
- (v) Calculate the maximum sale made in each month 2
- (vi) Draw a bar chart representing the sales made by each salesman. 2
- (vii) Draw a pie chart representing the sales made by a salesman in March. 2