DATA ANALYTICS VIVA QUESTIONS

Part A: Excel Functions

1) Conditional Formatting, IF, COUNTIF, SUMIF, AVERAGE, CONCAT

1. What is conditional formatting, and how is it applied in Excel?

Conditional formatting allows you to apply formatting (like colors) to cells that meet specific criteria. It is applied by selecting cells, clicking on Conditional Formatting under the Home tab, and defining rules.

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2. Explain the difference between COUNTIF and SUMIF functions.

COUNTIF: Counts cells meeting a specific condition.

SUMIF: Sums values in cells that meet a specific condition.

How does the IF function work? Provide an example.

The IF function performs a logical test and returns different values for TRUE and FALSE.

Example: =IF(A1>10, "Yes", "No") checks if A1 is greater than 10.

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3. What is the purpose of the CONCAT function?

CONCAT combines the text from multiple cells or values into one.

Example: =CONCAT(A1, B1) merges the contents of A1 and B1.

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4. How do you calculate the average of values that meet certain conditions?

Use AVERAGEIF(range, criteria, [average_range]).

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2) INDEX, MATCH, UNIQUE, IFS, COUNTIFS, SUMIFS, AVERAGEIFS

5. Explain how INDEX and MATCH work together.

INDEX: Returns a value from a specified row and column.

MATCH: Finds the position of a value in a range.

Together: =INDEX(A1:A10, MATCH(5, B1:B10, 0)) finds the value in A1:A10 where B1:B10 equals 5.

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6. What does the UNIQUE function do, and when is it useful?

The UNIQUE function returns a list of unique values from a range, helpful for removing duplicates.

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7. How does IFS differ from the IF function?

IFS checks multiple conditions sequentially, whereas IF checks one condition at a time.

Example: =IFS(A1>90, "A", A1>75, "B", A1>50, "C").

Provide an example of COUNTIFS with multiple conditions.

=COUNTIFS(A1:A10, ">50", B1:B10, "<100") counts cells where A > 50 and B < 100.

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3)VLOOKUP, HLOOKUP, XLOOKUP, COUNT, COUNTA

8. What are the differences between VLOOKUP, HLOOKUP, and XLOOKUP?

VLOOKUP: Searches vertically in a range.

HLOOKUP: Searches horizontally in a range.

XLOOKUP: Searches both vertically and horizontally, replacing the other two.

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9. How does COUNTA differ from COUNT in Excel?

COUNT: Counts numeric values only.

COUNTA: Counts all non-empty cells.

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10. In what scenarios would you use XLOOKUP over VLOOKUP?

XLOOKUP is more flexible and can return results from both left and right columns.

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4)LEFT, MID, RIGHT, LEN, SUBSTITUTE, SEARCH, ISNUMBER

11. How do the LEFT, MID, and RIGHT functions work? Provide examples.

LEFT: Extracts characters from the start. Example: =LEFT("Excel", 2) → "Ex".

MID: Extracts characters from the middle. Example: =MID("Excel", 2, 3) → "xce".

RIGHT: Extracts characters from the end. Example: =RIGHT("Excel", 2) → "el".

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12. Explain how SUBSTITUTE can be used to replace characters in a string.

SUBSTITUTE replaces specific text in a string.

Example: =SUBSTITUTE("Excel 2024", "2024", "2023") → "Excel 2023".

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13. What is the purpose of the ISNUMBER function?

ISNUMBER checks if a value is numeric.

Example: =ISNUMBER(A1) returns TRUE if A1 is a number.

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14. How do SEARCH and FIND differ?

SEARCH is case-insensitive; FIND is case-sensitive.

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5) TODAY, NOW, YEAR, MONTH, NETWORKDAYS, EOMONTH

15. How do the TODAY and NOW functions differ?

TODAY: Returns the current date.

NOW: Returns the current date and time.

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16. What is the use of the NETWORKDAYS function?

NETWORKDAYS calculates working days between two dates, excluding weekends and holidays.

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17. Explain how EOMONTH works and give a practical example.

EOMONTH returns the last day of a month.

Example: =EOMONTH(TODAY(), 1) gives the last day of next month.

Part B: Probability and Statistics

1)Probability

18. What is probability, and how is it calculated?

Probability is the likelihood of an event occurring. Formula:

Probability = (Favorable Outcomes) / (Total Outcomes).

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19. Can you give an example of how probability distributions are applied in real-life scenarios?

Example: Predicting the likelihood of rainfall using weather data.

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2)Test of Significance

20. What is the purpose of a T-test?

A T-test compares means to determine if there are significant differences between groups.

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21. Explain the difference between one-sample, two-sample, and paired-sample T-tests.

One-sample: Compares the mean of one group to a known value.

Two-sample: Compares means of two independent groups.

Paired-sample: Compares means of related groups.

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22. What are the assumptions of ANOVA?

Data should be normally distributed.

Groups should have equal variances.

Observations must be independent.

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23. How does the Chi-Square test differ from ANOVA?

Chi-Square is used for categorical data, while ANOVA is used for continuous data.

Part C: Power BI

Introduction to Power BI

24. What are the key data sources supported by Power BI?

Examples include Excel, CSV files, SQL databases, and SaaS solutions.

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25. How do you connect Power BI to a SaaS solution?

By using the Get Data option, selecting the SaaS connector, and entering the necessary credentials.

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26. What steps are involved in uploading and refreshing an Excel file in Power BI?

Upload the file using Get Data.

Enable refresh in the settings to keep the data updated.

Using Visualizations

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27. How do you create and arrange visualizations in Power BI?

Use the report view to drag fields to the canvas and arrange them using the formatting pane.

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28. What is the purpose of slicers in a Power BI report?

Slicers allow interactive filtering of data in visualizations.

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29. How do you format a map visualization in Power BI?

Use the formatting pane to customize colors, legends, and data labels.
