CIA 1 - Python for data analytics Theory + Practical

Total No.of Marks – 30

General Instructions:

- **Each student should complete all the assignment task as mentioned below.**

- **Ensure each one of you contribute along with your key ideas.**

- **Assignments submission should be .pdf format only and submit the task before deadline dates.**

- **If any Assignments are found to be copied, we will be unable to evaluate them**

1. Time-Series Trend Visualization & Analysis

Objective: Create a line graph and interpret the trend
Tasks:
• Use the given dataset
• Insert a line graph by selecting relevant columns
• List steps clearly (step-by-step)
• Interpret the pattern/trend shown in the graph
Expected Outcome:
A neat line graph + 2–3 lines of interpretation
Difficulty: Beginner
Estimated Time: 20 min

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2. Comparative Performance Visualization

Objective: Visualize data using a bar chart and explain the result
Tasks:
• Select variables to compare
• Insert a bar chart
• Write the procedure step-by-step
• Describe what the bar heights reveal about the data
Expected Outcome:
A clear bar chart + short interpretation
Difficulty: Beginner
Estimated Time: 20 min

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3. Category Distribution Analysis

Objective: Show proportional distribution with a pie chart

Tasks:

• Select a categorical column and its values

• Insert a pie chart

• Document all steps sequentially

• Explain the percentage share of each category

Expected Outcome:

A pie chart with labels + 2–3 lines explaining distribution

Difficulty: Beginner

Estimated Time: 15 min

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4. Formula Logic Demonstration & Output Validation

Objective: Demonstrate formula usage

Tasks:

• Select three commonly used formulas

• Write how each formula is applied

• Show the formula, sample input, and resulting output

Expected Outcome:

3 formulas clearly shown with explanation, inputs, and outputs

Difficulty: Beginner

Estimated Time: 20 min

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5. Statistical Summary & Insight Extraction

Objective: Apply statistics to a column and interpret results

Tasks:

• Choose any numeric column

• Calculate measures like mean, median, mode, standard deviation

• Present values in a small table

• Write 2–3 lines explaining what the statistics mean

Expected Outcome:

Statistical summary + meaningful interpretation

Difficulty: Beginner

Estimated Time: 20 min