Day 4: Pandas Basics – Assignment (40 Marks)

Section A: Fill in the Blanks (8 × 1 = 8 Marks)

A1) Dataframe/Data Table

A2) n

A3) (rows, cols)

A4) column

A5) Datatype

A6) agg

A7) groups

A8) aggregate

# Section B: Match the Columns (6 × 1 = 6 Marks)

A9) d

A10) a

A11) b

A12) c

A13) f

A14) e

# Section C: True or False (6 × 1 = 6 Marks)

A15) True

A16) False

A17) True

A18) False

A19) True

A20) True

Section D: Short-Answer Theory (5 × 2 = 10 Marks)

Q21. What is a DataFrame?

Ans) A DataFrame is a refined data in a form of a Table.

Q22. Why do we use df.head() before any analysis?

Ans) To check the first few rows to understand the type of data we are dealing with.

23. Explain why checking df.dtypes is important.

Ans) Some operations are limited to certain datatypes so we need to check it before proceeding with the operations.

Q24. How does df.groupby() help when you have categories?

Ans) When we need to perform operations on the data of a certain column then we need df.groupby().

25. When would you use df.agg() instead of individual .sum() or .mean() calls?

Ans) To use multiple different functions to a specific column or dataframe, it provides an exact way to summarize the data in a single operation.

# Section E: Practical Coding (Real-Life Scenarios) (2 × 5 = 10 Marks)

## E1: Weekly Milk Sales (5 Marks)

A dairy shop records litres of milk sold each day:

Csharp

Copy [10, 12, 9, 11, 13, 8, 14]

Tasks:

1. Create a DataFrame with columns day (Mon, Tue, …, Sun) and litres.

2. Display the first 3 rows.

3. Print the DataFrame’s shape, columns, and dtypes.

Show your code and its output.

Ans) Please follow the below code:

A screenshot of a computer program

AI-generated content may be incorrect.

Output of the above code:

A screen shot of a computer

AI-generated content may be incorrect.

## E2: Monthly Expenses Summary (5 Marks)

You track your January expenses:

|  |  |
| --- | --- |
| **Category** | **Amount (Rs.)** |
| Rent | 15000 |
| Food | 8000 |
| Utilities | 2000 |
| Transport | 3000 |

Tasks:

1. Create a DataFrame with this data.

2. Use a single pandas command to compute total, average, maximum, and minimum expense.

3. Print the results clearly.

Ans) Please follow the below code:

A screen shot of a computer

AI-generated content may be incorrect.

Output of the above code:

A screenshot of a computer

AI-generated content may be incorrect.