

## Python Pandas Assignment – Series & DataFrame

### Part A – Practical Questions

**Q1.** Create a Pandas **Series** from:

- a) A Python list: [10, 20, 30, 40, 50]
- b) A Python dictionary: { 'Math': 90, 'Science': 85, 'English': 88 }
- c) A NumPy array: np.array([5, 15, 25, 35, 45])

**Q2.** Create a **DataFrame** from:

- a) A dictionary of lists:

```
{
    'Name': ['Aman', 'Priya', 'Rohan', 'Simran'],
    'Age': [15, 16, 15, 17],
    'Class': ['X-A', 'X-B', 'X-A', 'X-C']
}
```

- b) A list of dictionaries:

```
[
    {'Name': 'Aman', 'Marks': 85},
    {'Name': 'Priya', 'Marks': 92},
    {'Name': 'Rohan', 'Marks': 76}
]
```

**Q3.** Create a DataFrame from a CSV file named `students.csv` with columns: ID, Name, Marks. Display the first 5 rows.

### Part B – Applying Attributes

On the Series and DataFrames created above, perform the following tasks:

**Q4.** For a **Series**, display:

- index
- values
- dtype
- size

**Q5.** For a **DataFrame**, display:

- shape
- columns
- index
- dtypes
- ndim

**Q6.** Using the DataFrame from **Q2(a)**, rename the columns as `StudentName`, `StudentAge`, `StudentClass`.

---

## Part C – Query-Based & Task Questions

**Q7.** From the DataFrame created in **Q2(a)**, select only the `Name` and `Class` columns.

**Q8.** Display only those rows where `Age > 15`.

**Q9.** Sort the DataFrame by the `Age` column in ascending order.

**Q10.** Add a new column `Marks` to the DataFrame with values `[85, 92, 76, 89]`.

---

## Part D – Multiple Choice Questions (MCQs)

**Q11.** Which Pandas function is used to create a Series from a Python list?

- a) `pd.Series()`
- b) `pd.List()`
- c) `pd.DataFrame()`
- d) `pd.Array()`

**Q12.** Which attribute of a DataFrame gives the number of rows and columns?

- a) `size`
- b) `shape`
- c) `ndim`
- d) `count`

**Q13.** In Pandas, the `index` attribute returns:

- a) The column names
- b) The row labels
- c) The total size of DataFrame
- d) Data types of columns