PG – 725

III Semester M.B.A. (Day and Eve.) Examination, May/June 2025
(CBCS) (2022 – 23 and Onwards)
MANAGEMENT
Paper – 3.11.1 : Data Science Using R and Python

Time : 3 Hours Max. Marks : 70

SECTION – A

Answer **any five** out of the following questions. **Each** question carries **5** marks. **(5×5=25)**

1. What are different data structures in R ? Briefly explain with examples.
2. Write a short note on graphic parameter settings in R.
3. What is a DataFrame in Python ? How do you create and index a DataFrame ?
4. Explain the stat.desc() function in R. How do you handle missing values using this function ?
5. What are multiple response questions ? How are they visualized using bar charts in R ?
6. Explain the use of merge() function in pandas with an example.
7. What is Folium in Python ? How is it useful for geospatial data visualization ?

SECTION – B

Answer **any three** of the following. **Each** question carries **10** marks. **(3×10=30)**

8. What is the purpose of Cairo PDF output in R graphics ? How can Unicode characters be embedded in figures ?
9. Explain time series handling in Python using pandas. Describe how date shifting and resampling are performed.
10. Discuss various types of bar and column charts used for visualizing categorical data in R. Provide suitable examples.
11. Describe the different types of window functions used in Python for time series analysis.

P.T.O.

SECTION – C

Compulsory question. **(1×15=15)**

12. A dataset contains sales data for a retail company across multiple regions. Using R and Python :

    a) Load the dataset in R and Python.

    b) Compute the summary statistics using R functions (summary(), sapply()).

    c) In Python, generate a time series plot of monthly sales.

    d) Create a histogram in R to display the distribution of product prices.

    e) Create a choropleth map in Python using Folium to show regional sales performance.