



Third Semester MCA Degree Examination, Dec.2023/Jan.2024
Data Analytics Using Python

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain in detail, control flow structures in Python with examples. (12 Marks)
- b. Explain with examples, the arithmetic and relational operators supported in Python. (08 Marks)

OR

- 2 a. Define Function. Explain types of arguments in Python functions. With example for each. (10 Marks)
- b. Explain the use of break and continue statements on loops in Python with relevant code example. (10 Marks)

Module-2

- 3 a. Explain with example, string slicing and joining with the help of slice (), Split () and join () functions. (10 Marks)
- b. Explain the file opening modes in Python. (04 Marks)
- c. Write a Python program to append data to a file. Read the contents from the file and print it on the terminal. (06 Marks)

OR

- 4 a. Explain the basic list operations in Python. (10 Marks)
- b. What is Inheritance? Explain inheritance with Python code. (10 Marks)

Module-3

- 5 a. What are the essential functionalities of Pandas? Explain with example. (10 Marks)
- b. What is Array Broadcasting? Write a Program to demonstrate the same. (10 Marks)

OR

- 6 a. Write a Program to demonstrate array manipulation , Sorting , Searching and Splitting using numpy. (10 Marks)
- b. Explain Missing Data Handling. Demonstrate the same with Python code by considering a sample data set. (10 Marks)

Module-4

- 7 a. Explain Merging of Data frames , using merge (). Illustrate various merge types possible with merge () function. (10 Marks)
- b. Write a note on Interacting with databases in Python. Write the code to load data from SQL database. (10 Marks)

OR

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

8

- a. Explain with example reshaping Data Frame using stack () and unstuck () functions. (10 Marks)
- b. Write a note on Data transformation and explain the following data transformation operations with example :
- i) Removing duplicates
 - ii) Mapping
 - iii) Replacing values
 - iv) Renaming axis indexes. (10 Marks)

Module-5

- 9 a. Describe Data Visualization. Use Matplotlib to plot sine and cosine graphs. Prepare data using numpy arrays. (10 Marks)
- b. Write short note on the following :
- i) Drawing histograms using Matplotlib. (10 Marks)
 - ii) Saving figures to file.

OR

- 10 a. Build a Scatter plot including the following :
Generate data for X and Y axis using random () function.
- i) Add axis labels to plot
 - ii) Add a legend
 - iii) Add a title. (10 Marks)
- b. Write a note on Visualizing Errors. (10 Marks)
