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Reg.No :

Name :

MAHATMA GANDHI UNIVERSITY, KOTTAYAM
MGU-UGP (HONOURS) Regular EXAMINATION October 2025

Third SEMESTER

**Discipline Specific Core Course (DSC) - MG3DSCCSC202 - PYTHON FOR
DATA ANALYTICS**

(2024 ADMISSION ONWARDS)

Duration: 1 Hour 30 Minutes

Maximum Marks: 50

*Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I)
and Appreciation(Ap)*

Students should attempt at least one question from each course outcome to enhance their overall
outcome attainability.

Part A

Very Short Answer Questions

Answer all questions

Each question carries **2** marks

1. Among descriptive, diagnostic, predictive, and prescriptive analysis, which type focuses on "future actions to take"? Justify. [U] / [CO1]
2. Define qualitative data. Give an example. [K] / [CO1]
3. Write the Python code to sort a NumPy array named arr. [K] / [CO2]
4. Name the pyplot function used to clear the current figure. Write an example. [K] / [CO3]
5. Define a Pandas Series. [K] / [CO3]

[2x5 = 10]

Part B

Short Answer Questions

Answer any **5** questions

Each question carries **5** marks

6. Discuss the importance of defining objectives in data analysis. [U] / [CO1]

7. Explain array indexing in NumPy. Illustrate your answer with suitable examples. [U] / [CO2]
8. Explain the importance of vectorization in Numpy with an example. [U] / [CO2]
9. Discuss the use of `np.min()`, `np.max()`, `np.argmin()`, and `np.argmax()` in analyzing datasets. Provide Python examples. [U] / [CO2]
10. Explain the role of the `pyplot` module in `matplotlib` with an example. [U] / [CO3]
11. Write the Python code to compute correlation between `math`, `science`, and `english` scores.
`data = {'math': [80, 90, 85], 'science': [75, 88, 82], 'english': [78, 85, 80]}` [A] / [CO3]
12. Write a Python code to detect and count missing values in a DataFrame. [A] / [CO3]
- [5x5 = 25]**

Part C

Essay Questions

Answer any 1 questions

Each question carries **15** marks

13. Explain the importance of `dtype` in NumPy arrays. How does `dtype` affect memory usage, computation speed, and type conversion (upcasting and downcasting) during array operations? [U] / [CO2]
14. Explain single element selection, multiple element selection, and slicing from a Pandas Series and DataFrame. Provide suitable examples. [U] / [CO3]
- [15x1 = 15]**