

(For the candidates admitted from 2024-25 onwards)

M.C.A. DEGREE EXAMINATION, AUGUST 2025.

First Semester

PYTHON PROGRAMMING

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 2 = 20$  marks)

Answer ALL the questions

1. Write an example of an assignment statement in Python.
2. What is meant by definite iteration?
3. Define recursion in programming.
4. State the purpose of function in programming.
5. Mention the difference between terminal-based and GUI-based programs.
6. What is an event in a GUI program?
7. Mention any two basic operations you can perform on NumPy array.
8. How do you add a title to plot in Matplotlib?
9. Recall the use of QuerySet in Django.
10. How do you retrieve all objects from model in Django?

PART B — ( $3 \times 5 = 15$  marks)

Answer any THREE questions.

11. Classify the different numeric data types supported in Python with example.
12. Develop a Python program to reverse a string using slicing.
13. Write a short program that creates a simple GUI with command button using Tkinter.
14. Analyze the basic operations on a NumPy array with an example.
15. Discuss the process of building an application within a Django project.

PART C — ( $5 \times 8 = 40$  marks)

Answer ALL the questions

16. (a) Compare and contrast the *for* and *while* loops with examples.

Or

- (b) Classify the different string operations with suitable example.

17. (a) Illustrate the structure and use of lists and dictionaries.

Or

- (b) Describe the string-to-number conversions using built-in functions.

18. (a) Write a complete Python program using a class Student with attributes name, roll\_no and marks. Add methods to display the data and compute the result.

Or

- (b) Explain with code how 2D grid can be implemented using lists in Python.

19. (a) Describe with examples how indexing, slicing and iteration work in NumPy arrays.

Or

- (b) Explain how line charts, bar charts, and pie charts are suitable for different types of data.

20. (a) Write down the steps to install Django and create a new project.

Or

- (b) Analyze the role of QuerySets and Managers in retrieving data from models.
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