

# **KAMARAJ COLLEGE (Autonomous)**

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

THOOTHUKUDI – 628 003

**(6 Pages)**

**Reg. No:** .....

**Question Code No :** 25001402

**Sub Code :** 25PMCA12

**PG Degree - End Semester Examinations, November 2025**

**First Semester**

**MCA**

**Advanced Python Programming**

**(For those who joined in July 2025 onwards)**

**Time : 3 Hours**

**Maximum : 75 Marks**

**PART – A (10 × 1 = 10 Marks)**

**Answer ALL Questions**

**Choose the correct answer:**

1. Which of the following is a valid loop for definite iteration in Python?  
(a) while loop                      (b) for loop  
(c) do-while loop                  (d) switch-case
2. Identify the numeric data type that represents real numbers in Python.



8. The method plot() in matplotlib.pyplot is primarily used to:
- (a) Generate a line chart
  - (b) Create a window
  - (c) Save a figure
  - (d) Plot pie chart
9. In Django, which command is used to create a new project?
- (a) django-admin startproject
  - (b) django-admin createproject
  - (c) python manage.py startapp
  - (d) django-admin makemigrations
10. QuerySets in Django are used to:
- (a) Create models
  - (b) Configure URLs
  - (c) Create migrations
  - (d) Retrieve objects from the database

**PART - B (5 X 5 = 25 Marks)**

**Answer ALL Questions choosing either (a) or (b).**

**Answer should not exceed 250 words.**

11. (a) What is the role of the range [] function in a loop?  
Explain with examples.

**(OR)**

- (b) Differentiate between if and if-else statements with examples.
12. (a) Apply top-down Methodology to develop a program

for computing the factorial of a given number.

**(OR)**

(b) Compare lists and dictionaries with suitable examples.

13. (a) Construct a Python class for modeling a student with attributes and methods.

**(OR)**

(b) Examine the advantages of polymorphism with a suitable example.

14. (a) Demonstrate array slicing operations in NumPy with code.

**(OR)**

(b) Analyze the difference between bar charts and pie charts using matplotlib.

15. (a) Apply Django ORM queries to filter data from a student database based on marks.

**(OR)**

(b) Differentiate between list and detail views in Django with an example.

**PART – C (5 X 8 = 40 Marks)**

**Answer ALL Questions choosing either (a) or (b).**

**Answer should not exceed 600 words.**

16. (a) Write a Python program using a while loop to simulate a simple ATM withdrawal system.

**(OR)**

(b) Evaluate the role of expressions, assignments and comments in program readability and efficiency.

17. (a) Construct a recursive function to compute the Fibonacci sequence up to n terms.

**(OR)**

(b) Analyze the importance of namespaces in managing program complexity with examples.

18. (a) Construct a class hierarchy for geometric shapes (circle, rectangle, triangle) using inheritance.

**(OR)**

(b) Evaluate the differences in user experience between terminal-based programs and GUI-based programs with case examples.

19. (a) Apply NumPy and Pandas to clean and analyze a dataset (example: student marks).

**(OR)**

- (b) Justify the significance of data visualization by comparing line, bar and pie charts with use cases.
20. (a) Formulate the steps to build a Django application for an online bookstore.

**(OR)**

- (b) Propose strategies to enhance performance of Django applications handling large-scale queries.