

QNSMARTI:H:QPCODE

Reg.No :

Name :.....

MAHATMA GANDHI UNIVERSITY, KOTTAYAM
MGU-UGP (HONOURS) REGULAR EXAMINATION OCTOBER 2026
THIRD SEMESTER
DISCIPLINE SPECIFIC ELECTIVE (DSE) - MG3DSEMATA04 - FOUNDATIONS OF PYTHON
PROGRAMMING FOR ARTIFICIAL INTELLIGENCE
(2025 ADMISSION ONWARDS)

Duration: 2 Hours

Maximum Marks: 70

Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)
Students should attempt at least one question from each Course Outcome to enhance their overall outcome attainability.

Part A

Multiple Choice Questions

Answer any 10 questions

Each question carries 3 marks

1. Which of the following is a major feature of Python that makes it suitable for AI applications?
 - a) Difficult syntax
 - b) Readable and simple syntax
 - c) Lack of libraries
 - d) Machine-dependent programming

[A / CO1]
2. Which command is used to check the installed version of Python?
 - a) python install
 - b) python --version
 - c) python check
 - d) python version()

[S]/ [CO1]
3. What is the output type of type(25.5)?
 - a) int
 - b) str
 - c) float
 - d) bool

[A] /[CO1]
4. Which operator is used for exponentiation in Python?
 - a) ^

b) //

c) **

d) %

[S] / [CO1]

5. Which statement is used to skip the current iteration of a loop and continue with the next iteration?

a) break

b) pass

c) continue

d) skip

[A] / [CO1]

6. Which Python data structure stores data in key-value pairs?

a) List

b) Tuple

c) Dictionary

d) Set

[A] / [CO2]

7. Which method is used to add an element to the end of a list?

a) insert()

b) append()

c) add()

d) extend()

[A] / [CO2]

8. Which of the following represents a tuple?

a) [10, 20, 30]

b) {10, 20, 30}

c) (10, 20, 30)

d) <10, 20, 30>

[A] / [CO2]

9. Which keyword is used to define a function in Python?

a) function

b) define

c) def

d) fun

[A] / [CO2]

10. Which statement correctly imports NumPy using the commonly used alias?

a) import numpy as np

b) include numpy as np

c) import np as numpy

d) using numpy

[S] / [CO3]

11. If `x = np.array([1, 2, 3])`, what is the result of `x * 2`?

a) [1, 2, 3, 2]

b) [2, 4, 6]

c) [3, 4, 5]

d) Error

[A] / [CO3]

12. Which NumPy function is used to calculate the arithmetic mean of an array?

a) np.sum()

- b) np.max()
- c) np.mean()
- d) np.std()

[A]/ [CO3]

13. Which type of plot is most suitable for showing the trend of monthly sales over a year?

- a) Histogram
- b) Line plot
- c) Pie chart
- d) Contour plot

[A]/ [CO4]

14. Which Matplotlib function is used to create a scatter plot?

- a) plt.line()
- b) plt.bar()
- c) plt.scatter()
- d) plt.hist()

[S] /[CO4]

15. Which Matplotlib function is used to display labels identifying different datasets in a graph?

- a) plt.title()
- b) plt.legend()
- c) plt.grid()
- d) plt.annotate()

[S] / [CO4]

[3 × 10 = 30]

Part B

One or Two Sentences Questions

Answer any 4 questions

Each question carries 5 marks

- 16. Explain the difference between for and while loops in Python with suitable examples. [S] / [CO1]
- 17. Explain exception handling in Python using try, except, else, and finally. [A] / [CO1]
- 18. Differentiate between the append() and extend() methods of a Python list with suitable Examples [A]/ [CO2]
- 19. Explain functional decomposition and discuss how functions and modules improve code organisation and reusability. [A]/ [CO2]
- 20. Explain the concept of reshaping a NumPy array. How can an array containing 12 elements be reshaped into a 3 × 4 array? [S]/ [CO3]
- 21. A student wants to study the relationship between the number of hours spent studying and examination marks. Which type of plot would you use in Matplotlib? Explain your choice. [A] / [CO4]

[5 × 4 = 20]

Part C

Short Essay Questions

Answer any 2 questions

Each question carries 10 marks

22. Explain the conditional and iterative control structures in Python. Discuss if, if-else, if-elif-else, for, and while statements with suitable examples. [S]/ [CO1]
23. Explain Python dictionaries in detail. Discuss their creation, accessing and modifying elements, and important operations with suitable examples. [A] / [CO2]
24. Explain NumPy arrays and their importance in numerical and AI-related computations. Discuss array creation and the attributes shape, size, ndim, and dtype, with suitable examples. [S]/ [CO3]
25. Explain the basic steps involved in creating and customising a visualization using Matplotlib. Discuss titles, axis labels, legends, annotations, grids, and other customization features with suitable examples. [S] /[CO4]

[10 × 2 = 20]