

Theory Exam: Python Basics, Maths for ML, EDA, and ML Basics

June 17, 2025

This exam consists of 50 theory questions covering Python Basics, Maths for Machine Learning, Exploratory Data Analysis, and Machine Learning Basics. Each question is worth 2 marks, for a total of 100 marks. Answer the questions concisely and accurately.

1. What is a variable in Python?
2. How do you create a list in Python? Give an example.
3. What does the `print()` function do in Python?
4. Explain the difference between a string and a number in Python.
5. What is a loop in Python? Name two types.
6. How do you add an element to a list in Python?
7. What is the purpose of the `len()` function?
8. How do you write a comment in Python?
9. What is the difference between `input()` and `print()`?
10. What does the `range()` function do? Give an example.
11. How do you check if an element is in a list in Python?
12. What is a Python dictionary? Give a simple example.
13. What is the mean of a set of numbers?
14. How do you calculate the sum of a list of numbers?
15. What is a percentage, and how is it calculated?
16. What does the term "slope" mean in a linear equation?
17. What is a square number? Give two examples.

18. Explain what a graph is in mathematics.
19. What is the difference between addition and multiplication?
20. What is a fraction, and how is it used?
21. What does the term "average" mean in math?
22. What is the purpose of a coordinate system?
23. Explain what a linear equation looks like.
24. What is the difference between positive and negative numbers?
25. What is the median of a dataset?
26. What is a dataset in data analysis?
27. What does a bar chart show?
28. What is the purpose of a histogram?
29. How can you find missing values in a dataset?
30. What is a table in data analysis?
31. What does the term "column" mean in a dataset?
32. What is a scatter plot used for?
33. Explain what data cleaning means.
34. What is the purpose of sorting data?
35. What does the term "row" mean in a dataset?
36. How do you count the number of items in a dataset column?
37. What is a line plot, and when is it used?
38. What is machine learning?
39. Name one example of a machine learning application.
40. What is the difference between training and testing data?
41. What is a model in machine learning?
42. Name two types of supervised learning tasks.
43. What is unsupervised learning? Give one example.
44. What is a prediction in machine learning?
45. Explain what an algorithm is in machine learning.

46. What is the purpose of a decision tree?
47. What does "accuracy" mean in machine learning?
48. Name one way to improve a machine learning model.
49. What is a feature in a machine learning dataset?
50. What is clustering in machine learning?