

# Coding Exam: Python Basics, Maths for ML, EDA, and Basic ML

June 17, 2025

This exam consists of 30 coding questions. Each question is worth a specified number of marks, totaling 100 marks. You are required to write Python code to solve each problem. Make sure to test your code to ensure it works correctly.

1. (3 marks) Write a Python function named `add_two_numbers` that takes two numbers as input and returns their sum.
2. (4 marks) Write a Python script that creates a list of numbers from 1 to 5 and prints each number on a new line.
3. (4 marks) Write a Python function named `get_first_three` that takes a list and returns a new list with only the first three elements.
4. (4 marks) Write a Python function named `count_numbers` that takes a list of numbers and returns how many numbers are in the list.
5. (5 marks) Write a Python function named `multiply_list` that takes a list of numbers and a number `n`, and returns a new list where each element is multiplied by `n`.
6. (3 marks) Write a Python function named `is_odd` that takes a number and returns `True` if it is odd, and `False` otherwise.
7. (3 marks) Write a Python script that prints the numbers from 10 to 1 in descending order.
8. (4 marks) Write a Python function named `min_of_three` that takes three numbers and returns the smallest one.
9. (4 marks) Write a Python function named `product_list` that takes a list of numbers and returns their product.
10. (3 marks) Write a Python script that takes a string from the user and prints it three times.
11. (4 marks) Write a Python function named `capitalize_string` that takes a string and returns it with the first letter capitalized.

12. (3 marks) Write a Python script that creates a list of the first 5 odd numbers.
13. (4 marks) Write a Python function named `median_of_list` that takes a list of numbers and returns their median.
14. (3 marks) Write a Python script that prints all numbers from 1 to 20 that are divisible by 4.
15. (4 marks) Write a Python function named `unique_count` that takes a list and returns the number of unique elements.
16. (3 marks) Write a Python script that takes a number from the user and prints whether it is even or odd.
17. (4 marks) Write a Python function named `is_sorted` that takes a list of numbers and returns `True` if it is sorted in ascending order, and `False` otherwise.
18. (3 marks) Write a Python script that creates a dictionary with keys "fruit", "color", and "price", and prints the value of "color".
19. (4 marks) Write a Python function named `power` that takes a number and an exponent and returns the number raised to that exponent.
20. (3 marks) Write a Python script that takes a list of numbers and prints the smallest number in the list.
21. (4 marks) Write a Python function named `alternate_elements` that takes a list and returns a new list with every other element (starting from the first).
22. (3 marks) Write a Python script that takes a string from the user and prints the number of vowels in it.
23. (4 marks) Write a Python function named `filter_positive` that takes a list of numbers and returns a new list containing only the positive numbers.
24. (3 marks) Write a Python script that prints the first 5 square numbers.
25. (4 marks) Write a Python function named `shuffle_list` that takes a list and returns a new list with the elements in random order (you may use the `random` module).
26. (3 marks) Write a Python script that takes a string and prints it in lowercase.
27. (4 marks) Write a Python function named `difference` that takes two lists and returns a new list containing elements that are in the first list but not in the second.

28. (3 marks) Write a Python script that creates a list of cubes of numbers from 1 to 4.
29. (4 marks) Write a Python function named `is_perfect_square` that takes a number and returns `True` if it is a perfect square, and `False` otherwise.
30. (3 marks) Write a Python script that takes a list of numbers and prints the sum of the odd numbers in the list.