

## Python Logic & Code Skill Test

Total Duration: 6 Hours

Total Questions: 21 (20 Regular + 1 Bonus)

Marks Distribution: Each Regular Question = 10 Marks, Bonus = 30

MarksTotal Marks: 230

Q1. Digit Sum PuzzleWrite a program to take a 2-digit number and return the sum of its digits.

Input: 47

Output: 11

Q2. Reverse CaseTake a string and reverse the case of all characters.

Input: "PyThOn"

Output: "pYtHoN"

Q3. Lucky Number CheckIf a number is divisible by 7 and ends with 7, print "Lucky!", else "Try again"

.Input: 77

Output: Lucky!

Q4. Min-Max in ThreeFind the minimum and maximum out of three numbers.

Input: 3 7 2

Output: Min: 2, Max: 7

Q5. Conditional OperationGiven a number, return double if even, triple if odd.

Input: 6

Output: 12

Q6. Char Index FinderGiven a string and a character, return all indices where the character appears.

Input: String: "programming", Char: "g"

Output: [3, 10]

Q7. Vowel CounterCount the number of vowels in a given string.

Input: "education"

Output: 5

Q8. Element FrequencyGiven a list of integers, count how many times each element appears.

Input: [1, 2, 2, 3, 1, 4, 2]

Output: {1: 2, 2: 3, 3: 1, 4: 1}

Q9. Unique Elements OnlyReturn a list with only unique elements, preserving original order.

Input: [1, 2, 2, 3, 1]

Output: [1, 2, 3]

Q10. Common Elements Given two lists, return the common elements sorted in ascending order.

Input: List1: [1, 3, 5, 7], List2: [3, 6, 7, 9]

Output: [3, 7]

Q11. Letter Frequency Map Return a dictionary with the frequency of each character in a string.

Input: "apple"

Output: {'a': 1, 'p': 2, 'l': 1, 'e': 1}

Q12. Dict Key Filter Given a dictionary of names and ages, return keys (names) of people over 18.

Input: {"Ali": 20, "Sara": 17, "Omar": 19}

Output: ["Ali", "Omar"]

Q13. Custom FizzBuzz Print numbers from 1 to N. Use "Fizz" for multiples of 3, "Buzz" for 5, and "FizzBuzz" for both.

Input: N = 15

Output: 1, 2, Fizz, 4, Buzz, Fizz, ..., FizzBuzz

Q14. Factorial With Validation Calculate factorial of a number, return -1 if number is negative.

Input: 5

Output: 120

Q15. Longest Word Finder Return the longest word from a given sentence.

Input: "AI makes life easier and faster"

Output: "easier"

Q16. Palindrome Index Find the index of the first character that breaks the palindrome. If already a palindrome, return -1.

Input: "abca"

Output: 1

Q17. Balanced Brackets Check if the string has balanced brackets {}, properly nested.

Input: "{[()]}"

Output: True

Q18. Most Frequent Element Return the most frequent element from a list. If tie, return the smallest.

Input: [1, 3, 2, 2, 3, 1, 3]

Output: 3

Q19. Sum of Multiples. Return the sum of all numbers below N that are multiples of 3 or 5.

Input: 10

Output: 23

Q20. Character Distance Given a string and a target character, return a list of distances from each character to the closest occurrence of the target.

Input: String: "loveleetcode", Target: "e"

Output: [3, 2, 1, 0, 1, 0, 0, 1, 2, 2, 1, 0]

Bonus Question (Q21)

Q21. Print Diamond Pattern Dynamically (30 Marks) Write a program that prints a diamond pattern of stars '\*' based on an odd number of rows.

Input: 5

Output:

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End of Question Paper