Python Fundamentals Exam

Duration: 90 minutes | Total Marks: 50 | Closed Book

Instructions

- Answer all questions.
- Duration: 90 minutes.
- Write clear and concise code.
- Use comments where necessary.
- No external resources allowed.

Section A: Multiple Choice Questions (1 point each)

1. What is the output of the following code?

```
x = 5
y = '5'
print(x + int(y))
```

(a) '55' (b) 10 (c) TypeError (d) None

2. Which of the following is an immutable data type in Python?

(a) List (b) Dictionary (c) Tuple (d) Set

3. What does range(3) return?

(a) [1, 2, 3] (b) [0, 1, 2] (c) range(1, 3) (d) Error

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

(a) define (b) def (c) func (d) function

5. What is the correct syntax to create a dictionary?

(a) d = {} (b) d = [] (c) d = () (d) d = set()

6. What will this code return?

```
def fun(x, y=2):
    return x * y
fun(3)
```

(a) 5 (b) 6 (c) Error (d) None

Section B: Short Answer / Code (5 points each)

7. Write a Python function that checks whether a given number is even or odd.

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8. Create a list of numbers from 1 to 10. Print only the even numbers using a loop.

9. Write a function to reverse a string passed as an argument.

10. Write a program that accepts a dictionary of student names and their marks, and prints the student with the highest score.

Section C: Programming Challenges (10 points each)

11. Create a simple calculator function that takes three parameters: number1, number2, and operation.

Supported operations: 'add', 'subtract', 'multiply', 'divide'. Return the result accordingly.

12. Write a function that accepts a list of strings and returns a new list with only the strings that are palindromes.

13. Define a function that takes a sentence and returns a dictionary with the frequency count of each word.

14. Implement a function to flatten a nested list.

Example: flatten([[1, 2], [3, 4]]) returns [1, 2, 3, 4]