Brain Mentors
We Develop IT Brains

Python Test

Total Questions: 12 (7 MCQs + 5 Coding Questions)

Multiple Choice Questions (MCQs)

1. What will be the output when multiplying a string with a number and adding another string?

```
a = "hello"

print(a * 2 + "3")
```

   a) hellohello3
   b) hellohellohello
   c) error
   d) hellohello

2. What is the correct way to define a function with a default parameter in Python?
   a) def add(x, y = 5):
   b) def add(x = 5, y):
   c) def add(x: int, y):
   d) def add(int x, int y=5):

3. If a list is assigned to another variable and modified, how will it affect the original list?

```
x = [1, 2, 3]

y = x

y.append(4)

print(x)
```

   a) It remains unchanged

b) It reflects the modification
c) It causes an error
d) The new list is independent

4. How can you check if a variable is of type integer?
   a) if type(x) == int:
   b) if x == int:
   c) if type(x) is int:
   d) Both (a) and (c)

5. What will be the effect of using a mutable default argument in a function?

```
def test(x, y=[]):

    y.append(x)

    return y



print(test(1))

print(test(2))
```

a) The default argument resets each time the function is called
b) The function retains modifications from previous calls
c) The function throws an error
d) None of the above

6. What happens if an exception is raised inside a try block but no except block is present?
   a) The program stops execution with an error
   b) The program continues execution normally
   c) The exception is ignored
   d) Python automatically fixes the error

7. What will be the output when using a mutable default list in a function and appending to it in multiple function calls?

```
def func(a, b=[]):
    b.append(a)
    return b

print(func(1))
print(func(2, []))
print(func(3))
```

a) The list resets for each function call
b) The list retains values from previous calls
c) An error occurs
d) None of the above

Coding Questions (3 marks each)

8. Write a function that takes a string as input and replaces every vowel ('a', 'e', 'i', 'o', 'u') with `*`.

9. Write a program that takes a list of numbers as input and returns a new list containing only the even numbers.

10. Write a function that checks whether a list is sorted in ascending order and returns `True` or `False`.

11. Write a function to check whether a given number is a **Strong Number** or not.

Definition:
A Strong Number is a number where the sum of the factorial of its digits is equal to the number itself.

Example:

```
Input: 145

Output: 145 is a Strong Number

Explanation: 1! + 4! + 5! = 1 + 24 + 120 = 145
```

12. Write a function to convert a **binary number** (given as a string) to **decimal** without using built-in functions.

Example:

```
Input: "1011"

Output: 11

Explanation: (1×2³) + (0×2²) + (1×2¹) + (1×2⁰) = 8 + 0 + 2 + 1 = 11
```
