Name: _____ **Roll No:** _____ **Section:**_____

Quiz 2 (IP 2024). **Time: 20 mts.**

- Write your name, roll no, section on top of this page.
- Please use the space provided after each question to give your answer. You can use the opposite side of the pages for rough work.
- This is an exam, so as per Institute policy, if you are caught using unfair means, you can get an F in the course.

Q1 (1 mark) Identify the most critical issue, if any, with the following code:

```
def fact(n):
 if n > 0:
   return (n * fact(n-1))

print(fact(5))
```

a. Syntax Error
b. Run-time Error
c. No error and the code with return factorial of 5 as 120.
d. Base case is not defined for the recursion.

Q2. (1+1 marks) Consider the following code:

```
def f(s):
    chars = {}
    for char in s:
        if char not in chars:
            chars[char] = 1
        else:
            chars[char] += 1
    d = []
    for char, count in chars.items():
        if count > 1:
            d.append(char)
    return d
```

a. What is the output of `print(f("IntroductionToProgramming"))` ?	**b.** Give a simple one line comment explaining the functionality of the above code

Q3 **(1+1 marks)** Consider the following two code-snippets and find out **potential issue(s) with reasons** that may arise during the execution in each case. *Note: No marks without reason*.

`with open('input.txt', 'r+') as fp:`
`  print(fp.read())`
`  fp.write("Hi, I'm writing exam for CSE101.")`
	`with open('input.txt', 'w+') as fp:`
	`  fp.write("Hi, I'm writing exam for CSE101.")`
	`  print(fp.read())`

List down the issue:	**List down the issue:**

Q4. (1+1 marks) Consider the following functions:

```
def g(t, count):
        for item in t:
            if isinstance(item, tuple): #True if the item is a tuple
                g(item, count)
            else:
                if item in count:
                    count[item] += 1
                else:
                    count[item] = 1

def f(t):
    count = {}
    g(t, count)
    return count

# Test input
test_tuple = (5, (6, (7, 8, 6)))
# Get the result
```

```
result = f(test_tuple)
print(result)
```

a. What will be the output of the code for the given test input ?	**b.** Give a simple one line comment explaining the functionality of the code

Q5. (1+2 marks) The function below is intended to merge two dictionaries, where each key in the dictionaries stores a list of elements. For a common key in both dictionaries the values (lists) should be combined into a single list. There is, however, a bug in the code.

```
1. def merge_dicts(dict_1, dict_2):
 2  new_dict = {}
 3  for key in dict_1:
 4     if key in dict_1 and key in dict_2:
 5             new_dict[key] = dict_1[key][:] + dict_2[key][:]
 6     elif key in dict_1:
 7             new_dict[key] = dict_1[key][:]
 8     else:
 9             new_dict[key]= dict_2[key][:]
 10  return new_dict

# Test data
dict_1 = {0: [1, 2], 1: [3, 4],2:[6,7]}
dict_2 = {0: [3], 1: [5]}

result = merge_dicts(dict_1, dict_2) # result is Merged Dictionary:
#{0: [1, 2, 3], 1: [3, 4, 5],2:[6,7]}
```

a. Write an assert statement to demonstrate a case where the code fails. Explain why you have decided	**b.** Write the changes to the code which are needed to fix the error.

on this assert statement. (Without this explanation, no marks will be awarded for this question)	Location of edit: _____ Edit: _____ _____ Location of edit: _____ Edit: _____ _____

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