National Institute of Technology Hamirpur

Department of Mathematics and Scientific Computing

(End Semester Exam, November 2023)

Course: B.Tech.

Subject: Programming in Python

Time: 3 hrs

Semester/year: 5th/3rd

Subject code: MA-314

Total Marks: 50

Instructions for candidates:

1. Mobile phone, Tablets, Programming calculator are not allowed in the examination hall.

2. Attempt all question.

Question 1: (5+5 = 10 Marks)

1. What is the concept of a dictionary in Python, and explain four built-in methods used with dictionaries, along with illustrative examples?
2. What is list and explain the five ways of creating list with examples and what will be the output of the following code   **(3+2 marks)**

```
sample = ['p', 'q']
n = 5
result = [item + str(i) for i in range (1, n + 1) for item in sample]
print(result)
```

Question2: (5+5 = 10 Marks)

1. What is tuple explain the difference between in string, list, tuple and dictionary with example.
2. Explain all file processing modes supported in Python also explain the types of errors with examples.

Question3: (5+5 = 10 Marks)
1. What is an exception and raise? Explain in detail.
2. Explain seven common built in exceptions provided in python with example

Question4: (5+5 = 10 Marks)
1. What is the different type of operators in Python, give example for each.
2. Explain the three libraries and packages in python, explain with the use for each and what will be the output of the following programme   **(3+2 marks)**

```
a = 400
b = 69
print("a & b =", a & b)
print("a | b =", a | b)
print("~a =", ~a)
print("a ^ b =", a ^ b)
print("a >> 1 =", a >> 1)
print("b >> 1 =", b >> 1)
print("a << 1 =", a << 1)
print("b << 1 =", b << 1)
```

Question 5: (5+5 = 10 Marks)
1. What is normal function and lambda function, what the difference in map and filter function with examples.
2. What are local variables and global variables in Python. How does break, continue, and pass work also what will be the output of following programme   **(3+2 marks)**

```
g=4
def func_multiply():
l=5
m=g*l
return m
func_multiply()
```