NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY ,GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MASTER OF INTEGRATED TECHNOLOGY

(SEM: 01 Theory Examination   (2020-2021)

Subject Name: PROBLEM SOLVING USING PYTHON

Time: 3Hours   **Max. Marks:100**

General Instructions:

➢ All questions are compulsory. Answers should be brief and to the point.
➢ This Question paper consists of 02 pages & 08 questions.
➢ It comprises of three Sections, A, B, and C. You are to attempt all the sections.
➢ <u>Section A</u> -Question No- 1 is very short answer type questions carrying 1 mark each, Question No- 2 is short answer type carrying 2 mark each. You are expected to answer them as directed.
➢ <u>Section B</u> - Question No-3 is Long answer type -I questions with external choice carrying 6 marks each. You need to attempt any five out of seven questions given.
➢ <u>Section C</u> -Question No. 4-8 are Long answer type –II (within unit choice) questions carrying 10marks each. You need to attempt any one part <u>a orb.</u>
➢ Students are instructed to cross the blank sheets before handing over the answer sheet to the invigilator.
➢ No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION – A

				CO
1.	**Answer <u>all</u> the parts-**		**[10×1=10]**	**CO**
a.	In Python what is slicing?		(1)	CO1
b.	Write name of any two Python Editors(IDE)?		(1)	CO1
c.	What is the output when we execute list ("hello")?		(1)	CO4
d.	Name the Mutable built-in type does python provides?		(1)	CO4
e.	What is __init__?		(1)	CO3
f.	What is negative index in Python?		(1)	CO2
g.	Define recursion?		(1)	CO3
h.	How is Python an interpreted language?		(1)	CO1
i.	What does [::-1] do?		(1)	CO1
j.	What are different file opening modes?		(1)	CO5
2.	**Answer <u>all</u> the parts-**		**[5×2=10]**	**CO**
a.	Define floor division with example?		(2)	CO1
b.	Differentiate between global and non-local variables?		(2)	CO3
c.	Explain Regular expressions?		(2)	CO4
d.	Define the Programming Cycle for Python?		(2)	CO1
e.	Explain lambda function?		(2)	CO3

SECTION – B

				CO
3.	**Answer any <u>five</u> of the following-**		**[5×6=30]**	**CO**
a.	Write Python code to find the factorial of a number.		(6)	CO2
b.	Write Python program to convert uppercase letter to lowercase and vice-versa.		(6)	CO2
c.	Discuss format specifiers and escape sequences with examples.		(6)	CO1

d.	Write a module in Python to implement arithmetic calculator that has following user-defined functions: add( ), sub( ), mul( ), div( ). Write a python program to import this module and perform any operation.	**(6)**	**CO3**
e.	Discuss File handling in python. How to perform open, read, write, and close operations into a text file. Discus CSV files.	**(6)**	**CO5**
f.	Discuss the relation between tuples and lists, tuples and dictionaries in detail.	**(6)**	**CO4**
g.	Explain the following by giving suitable code:	**(6)**	**CO4**

     i.   List Comprehension
    ii.   Packing and Unpacking in tuples

SECTION – C

4	**Answer any <u>one</u> of the following-**	**[5×10=50]**	**CO**
a.	Write Python Programs to print following patterns.	**(10)**	**CO2**

```
1                                          *
010                                       ***
10101                                    *****
0101010                                 *******
```

b.	Write Python Program to count the number of characters in a string using dictionaries. Display the keys and their values in alphabetical Order.	**(10)**	**CO4**
5.	**Answer any <u>one</u> of the following-**		
a.	Explain Ethics and IT policy in company.	**(10)**	**CO1**
b.	Explain the purpose and working of loops. Discuss Break and continue With example. Write a Python program to convert time from 12 hour to 24-hour format.	**(10)**	**CO2**
6.	**Answer any <u>one</u> of the following-**		
a.	Explain the following:	**(10)**	**CO1**

     i.   Implicit and Explicit type-casting
    ii.   Rules for naming an Identifier

b.	Describe Arithmetic Operators, Assignment Operators, Relational Operators, Logical Operators and Bitwise Operators in detail with examples.	**(10)**	**CO1**
7.	**Answer any <u>one</u> of the following-**		
a.	Discuss Exceptions and Assertions in python. How to handle Exceptions With Try-Except? Explain 5 Built-in Exceptions with example.	**(10)**	**CO5**
b.	Write a Python program to check the validity of a password given by the user. The Password should satisfy the following criteria:	**(10)**	**CO4**

    1. Contain at least 1 letter between a and z
    2. Contain at least 1 number between 0 and 9
    3. Contain at least 1 letter between A and Z
    4. Contain at least 1 character from $, #, @
    5. Minimum length of password: 6
    6. Maximum length of password: 12

8.	**Answer any <u>one</u> of the following-**		
a.	Write Python program to sort numbers in a list in ascending order using Merge Sort.	**(10)**	**CO5**
b.	How memory is managed in Python? Explain PEP 8. Write a Python Program to print even length words in a string.	**(10)**	**CO4**