Printed Page:- Subject Code:- AMICSE0101

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute)

Affiliated to Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow

M.Tech (Int)

SEM: I - THEORY EXAMINATION (2021 - 2022)

Subject: Problem Solving using Python

Time: 03:00 Hours Max. Marks: 100

General Instructions:

1. All questions are compulsory. It comprises three Sections A, B and C.

- Section A - Question No- 1 is objective type question carrying 1 mark each & Question No- 2 is very short type questions carrying 2 marks each.
- Section B - Question No- 3 is Long answer type - I questions carrying 6 marks each.
- Section C - Question No- 4 to 8 are Long answer type - II questions carrying 10 marks each.
- No sheet should be left blank. Any written material after a Blank sheet will not be evaluated/checked.

SECTION A 20

1. Attempt all parts:-

1 What is the output of the following code : (CO1) 1

```
print (9//2)
```

1. 4.5
2. 4
3. 4.0
4. None

1 Select the right way to create a string literal Rama's City . (CO1) 1

1. str1 = 'Rama\\'s City'
2. str1 = 'Rama\'s City'
3. str1 = 'Rama's City'
4. str1 = '''Rama\\'s City'''

1-c. What is the output of the following loop? (CO2) 1

```
for i in 'NIET':
  if i == 'E':
    pass
  print(i, end=", ")
```

1. N, I, E, T
2. N, I, T
3. E
4. Error

1-d. What is the output of the following if statement? (CO2) 1

```
a, b = 12, 5
if a + b:
   print('True')
else:
  print('False')
```

1. True
2. False

3. 17
4. Error

1-e. What is the output of the add() function call? (CO3) 1

```
def add(a, b):
   return a+5, b+5

result = add(3, 2)
print(result)
```

1. 15
2. 8
3. (8, 7)
4. Syntax Error

1-f. What is the output of the following function call? (CO3) 1

```
def fun1(num):
   return num + 25

fun1(5)
print(num)
```

1. 25
2. 5
3. 30
4. NameError

1-g. What is the output of the following ? (CO4) 1

```
a = [1, 2, 3, 4, 5, 6, 7]
pow2 =  [2 * x for x in a]
print(pow2)
```

1. [2, 4, 6, 8, 10, 12, 14]
2. [2, 4, 8, 16, 32, 64, 128]
3. [1, 2, 3, 4, 5, 6, 7]
4. LogicalError

1-h. Select correct ways to create an empty dictionary. (CO4) 1

1. sampleDict = {}
2. sampleDict = dict()
3. sampleDict = dict{}
4. Both option 1 and 2 are correct

1-i. To open a file c:\scores.txt for appending data, we use _____. (CO5) 1

1. outfile = open("c:\\scores.txt", "a")
2. outfile = open("c:\\scores.txt", "rw")
3. outfile = open(file = "c:\scores.txt", "w")
4. outfile = open(file = "c:\\scores.txt", "w")

1-j. When will the else part of try-except-else be executed? (CO5) 1

1. always
2. when an exception occurs
3. when no exception occurs
4. when an exception occurs in to except block

2. Attempt all parts:-

2-a.	Differentiate between type-conversion and type-casting. (CO1)	2
2-b.	Print series 1,2,3,4,6,7,8,10 using for loop. (CO2)	2
2-c.	What is the advantage of recursion as compared to iteration? (CO3)	2
2-d.	Write a python program to sort the element of list based on their length. (CO4)	2
2-e.	Write a program that print the names of all of the item in the current working directory. (CO5)	2

SECTION B 30

3. Answer any five of the following:-

3-a.	Design a flow-chart to find sum of odd digits of a given number. (CO1)	6
3-b.	What is Cache memory? How is it different from the primary memory? (CO1)	6
3-c.	Write a Python Program to find the frequency of each digit in a number. (CO2)	6
3-d.	Write a Python program to accept three numbers from the user and display the second largest number. (CO2)	6
3-e.	Elaborate various types of actual and formal arguments used in functions. Give example of each type of arguments. (CO3)	6
3-f.	Differentiate between the following methods of list using example: (CO4) a). append() and extend() b).pop() and remove()	6
3-g.	Write a program that prompts the user to enter two numbers and displays their sum. Raise an exception and handle it if a non-number value is given as input. (CO5)	6

SECTION C 50

4. Answer any one of the following:-

4-a.	Draw a diagram of digital computer and explain its all components in details. (CO1)	10
4-b.	Define operators in python. Explain about relational and logical ,Membership operators with python code example. (CO1)	10

5. Answer any one of the following:-

5-a.	Write a Python program to find sum and reverse of digits in a number entered by the user within same loop body. (CO2)	10
5-b.	Write a Python program to enter marks of a student in four subjects. Then calculate Total and aggregate ,and display the grade obtained by the student. (CO2) If the student scores an aggregate >=75%, then the grade is Distinction. If aggregate is >= 60and <75, then the grade is First Division. If aggregate is >= 50 and <60, then the grade is Second Division. If aggregate is >= 40and <50, then the grade is third Division. Otherwise the grade is fail.	10

6. Answer any one of the following:-

6-a.	Explain recursion. Write a program to reverse a string using recursion. (CO3)	10
6-b.	What are packages? Give an example of package creation and installation in Python. Write a small code to illustrate the use of package in Python. (CO3)	10

7. Answer any one of the following:-

7-a.	Write a Program to generate Fibonacci sequence up to nth term and store it in a list. Then find the sum of odd number. (CO4)	10
7-b.	Write a Program to read a name and display it in abbreviated form .like Jai Kumar should be display as JK. (CO4)	10

8. Answer any one of the following:-

8-a.	A file named DATA.txt contains a series of integer numbers separated by space. Write a program to read these numbers and then write all "odd" numbers in a file to be called ODD.txt and all "even" numbers in a file to be called EVEN.txt. (CO5)	10
8-b.	Define Error. Explain different types of errors with suitable example. Create a try and multiple except block to handle namerror, typeerror and some other unexpected error. (CO5)	10