Printed Page:- **Subject Code:-** AMICSE0101

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech (Integrated)

SEM: I - THEORY EXAMINATION (2022 - 2023)

Subject: Problem Solving using Python

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

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* **three Sections -A, B, & C.** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *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-a. Which of the following is the smallest unit of data in a computer. [CO1] 1

(a) Bit

(b) KB

(c) Nibble

(d) Byte

1-b. What is the output of this expression, 3*1**3. [CO1] 1

(a) 27

(b) 9

(c) 3

(d) 1

1-c. What will be the final value of i after 1

for i in range(3): [CO2]

(a) 0

(b) 1

(c) 2

(d) 3

1-d. What is the value of s[4 :1 :-1]. [CO2] 1

Where s="Python"

(a) pyt

(b) hon

(c) yth

(d) oht

1-e. Which keyword is used for function. [CO3] 1

(a) Fun

(b) Define

(c) def

(d) Function

1-f. A function is defined within. [CO3] 1

(a) Module

(b) Class

(c) Another function

(d) All of the mentioned

1-g. What will be the list comprehension to find the cube for the following: [CO4] 1

Number=[1, 2, 3, 4, 5, 6, 7, 8, 9].

(a) [x**3 for x in Number]

(b) [x^3 for x in Number]

(c) [x**3 in Number]

(d) [x^3 in Number]

1-h. Which data structure does not support indexing. [CO4] 1

(a) List

(b) Tuple

(c) Dictionary

(d) Set

1-i. _____block contains code which may cause exception. [CO5] 1

(a) try

(b) except

(c) else

(d) finally

1-j. When a variable is not define which error is raised by python. [CO5] 1

(a) ZeroDivisionError

(b) NameError

(c) ValueError

(d) None of the above

2. Attempt all parts:-

2.a. What are the rules for naming an identifier. [CO1] 2

2.b. Print series 1,2,3,4,6,7,8,10 using continue. [CO2] 2

2.c. What is the use of the return statement. [CO3] 2

2.d. What is the difference between a tuple and a dictionary. [CO4] 2

2.e. Write a short note on finally block with example. [CO5] 2

SECTION B **30**

3. Answer any <u>five</u> of the following:-

3-a. Design a flow-chart to find sum of first n natural numbers. [CO1] 6

3-b. Differentiate among Assembler, Compiler and Interpreter. [CO1] 6

3-c. Write a Python program to check whether the given number is Armstrong number or not. [CO2] 6

3-d. Write a program to decide given number is prime or not.[CO2] 6

3.e. Discuss the need and importance of function in python. [CO3] 6

3.f. Differentiate between the following methods of list using example: [CO4] 6
a) append() and extend()
b) pop() and remove()

3.g. Describe different types of errors in programming language. [CO5] 6

SECTION C **50**

4. Answer any <u>one</u> of the following:-

4-a. Draw a diagram of digital computer and explain its all components in details. (CO1) 10

4-b. Write a python program to illustrate all Bitwise operators. Also, show the expected output.[CO1] 10

5. Answer any <u>one</u> of the following:-

5-a. 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 students. 10

[CO2]

if the student scores greater than 100 %, then the invalid score.

If the student scores an aggregate greater than 75%, then the grade is Distinction.

If aggregate is 60>=and<=75, then the grade is First Division.

If aggregate is 50>= and<=60, then the grade is Second Division.

If aggregate is 40>=and<50, then the grade is third Division.

Otherwise the grade is fail.

5-b. Write a Python Programs to print following patterns. [CO2] 10

```
    1
  1 2 1
1 2 3 2 1
1 2 3 4 3 2 1
1 2 3 4 5 4 3 2 1
```

6. Answer any <u>one</u> of the following:-

6-a. A 4 digit integer is entered through the keyboard. Write a function to calculate the sum of the 4 digit number both without recursion and using recursion.[CO3] 10

6-b. Write short notes on: [CO3] 10

(a.) Keyword Arguments

(b.) Default Arguments

(c.) Lambda functions

7. Answer any <u>one</u> of the following:-

7-a. What is List? Write Python program to sort words in a sentence in decreasing order of their length. Display the sorted words along with their length. [CO4] 10

7-b. Explain all the data types in python with suitable example of each type. [CO4] 10

8. Answer any <u>one</u> of the following:-

8-a. Explain try, except, else and finally block with their syntax and also discuss application of these blocks. [CO5] 10

8-b. A file named DATA.txt contains a series of integer numbers. Write a program to read these numbers 10

then write all "odd" numbers to a file to be called ODD.txt and all "even" numbers to a file to be called EVEN.txt.[CO5]