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Subject Code:- AMICSE0101

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech (Integrated)

SEM: I - CARRY OVER THEORY EXAMINATION - MAY 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. What will be the value of the following Python expression. [CO1]

1

$4 + 3 \% 5$

(a) 7

(b) 2

(c) 4

(d) 1

1-b. A box that can represent two different conditions. [CO1]

1

(a) Rectangle

(b) Diamond

(c) Circle

(d) Parallelogram

1-c. A variable can be removed by using which keyword. [CO2]

1

(a) remove

- (b) clear
(c) del
(d) delete
- 1-d. Which statement ends the current iteration of the loop and continues with the next one.[CO2] 1
(a) break
(b) continue
(c) skip
(d) pass
- 1-e. Which of the following is the use of function in python.[CO3] 1
(a) Functions are reusable pieces of programs
(b) Functions don't provide better modularity for your application
(c) you can't also create your own functions
(d) All of the mentioned
- 1-f. Which of the following is a feature of DocString. [CO3] 1
(a) Provide a convenient way of associating documentation with Python modules, functions, classes, and methods
(b) All functions should have a docstring
(c) Docstrings can be accessed by the `__doc__` attribute on objects
(d) All of the mentioned
- 1-g. What will be the list comprehension to pick out only negative integers from a given list 'l'. [CO4] 1
(a) `[x<0 in l]`
(b) `[x for x<0 in l]`
(c) `[x in l for x<0]`
(d) `[x for x in l if x<0]`
- 1-h. What will be the output of the following Python Code. [CO4] 1
`s=["pune", "mumbai", "delhi"]`
`[(w.upper(), len(w)) for w in s]`
(a) Error
(b) `['PUNE', 4, 'MUMBAI', 6, 'DELHI', 5]`
(c) `[PUNE, 4, MUMBAI, 6, DELHI, 5]`
(d) `[('PUNE', 4), ('MUMBAI', 6), ('DELHI', 5)]`
- 1-i. Which of the following statements is/are true if no exception occurs in the 1

program. [CO5]

- (a) try block will be executed partially
- (b) Matching except block will be executed
- (c) finally block will be executed
- (d) None of the above.

- 1-j. To open a file c:\scores.txt for reading, we use _____. [CO5] 1
- (a) infile = open("c:\scores.txt", "r")
 - (b) infile = open("c:\\scores.txt", "r")
 - (c) infile = open(file = "c:\scores.txt", "r")
 - (d) infile = open(file = "c:\\scores.txt", "r")

2. Attempt all parts:-

- 2.a. Define string in python with example. [CO1] 2
- 2.b. Explain break statement in python. [CO2] 2
- 2.c. What are the advantages of functions in Python. [CO3] 2
- 2.d. Write a python program to find length of word in a string . [CO4] 2
- 2.e. Write a short note on try block with example. [CO5] 2

SECTION B

30

3. Answer any five of the following:-

- 3-a. Differentiate among Assembler, Compiler and Interpreter. [CO1] 6
- 3-b. What is algorithm also write properties of an algorithm.[CO1] 6
- 3-c. Write a program to determine whether a digit, uppercase or lower case is entered.[CO2] 6
- 3-d. Write a Python Programs to print following patterns: [CO2] 6
- ```
A
B C
D E F
G H I J
K L M N O
```
- 3.e. Explain how to create a module. Implement an arithmetic calculator using module.[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

**4. Answer any one of the following:-**

- 4-a. Draw a flow chart and write algorithms to find sum of cubes of all digits of a number. Also write down all symbols used in flow chart with their purpose.[CO1] 10
- 4-b. Draw a diagram of digital computer and explain its all components in details. (CO1) 10

**5. Answer any one of the following:-**

- 5-a. Write a Python Programs to print following patterns: [CO2] 10  
1  
2 3  
4 5 6  
7 8 9 10  
11 12 13 14 15
- 5-b. Write a Python Program to Print all the Prime Numbers from 1 to 500. [CO2] 10

**6. Answer any one of the following:-**

- 6-a. Explain different types of function and also write a program to compute factorial of a given number using recursion. [CO3] 10
- 6-b. Explain various types of formal arguments using which a function can be called, give example of each. [CO3] 10

**7. Answer any one of the following:-**

- 7-a. Discuss the Set Operations with help of suitable example. [CO4] 10
- 7-b. Discuss at least 5 dictionary functions with suitable example for each. [CO4] 10

**8. Answer any one of the following:-**

- 8-a. Explain NameError, ValueError, ZeroDivisionError and also write a python program to handle these errors. [CO5] 10
- 8-b. Explain need of file handing and its mode in python, also write a program to write numbers from 1 to 10 in file and read these numbers from file.[CO5] 10