NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: I - THEORY EXAMINATION (2024 - 2025)
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.   When an algorithm is written in the form of a programming language, it becomes   1
        a _____ [CO1][K1]

   (a)   Flowchart
   (b)   Program
   (c)   Pseudo code
   (d)   Syntax

1-b.   Which type of Programming does Python support? [CO1][K2]   1

   (a)   object-oriented programming
   (b)   structured programming
   (c)   functional programming
   (d)   all of the mentioned

1-c.   What will be the final value of i after   1
        for i in range(3): [CO2][K3]

   (a)   0
   (b)   1
   (c)   2
   (d)   3

1-d.   What is the value of s[4 :1 :-1]. [CO2] [K3]   1
        Where s="Python"

(a) pyt

(b) hon

(c) yth

(d) oht

1-e. If return statement is not used inside the function, the function will return: [CO3][K2]　　1

(a) None

(b) 0

(c) Null

(d) Arbitrary Value

1-f. What is a recursive function? [CO3]　　1

(a) A function that calls other function.

(b) A function which calls itself.

(c) Both A and B

(d) None of the above

1-g. What will be the output of the following Python code? [CO4]　　1
X=[[1 ,2, 3], [4, 5, 6], [7, 8, 9]]
[[row[i] for row in X] for i in range(3)]].

(a) Error

(b) [[1, 4, 7], [2, 5, 8], [3, 6, 9]]

(c) 147
258
369

(d) (147)
(258)
(369)

1-h. Which data Structure does not allow duplicate values? [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. Which error will be raised when denominator of division operator is zero. [CO5]　　1

(a) ZeroDivisionError

(b) ValueError

(c) NameError

(d) SyntaxError

2. Attempt all parts:-

2.a.	Define operators in python. [CO1] [K1]	2
2.b.	Listout the all types of loop in python. [CO2] [K2]	2
2.c.	Describe the need of the function? [CO3][K1]	2
2.d.	Explain Slicing in Python with a help of an example for all data types. [CO4][K3]	2
2.e.	What is the difference between readline() and readlines() ? [CO5] [K4]	2

SECTION-B 30

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

3-a.	Expalin various data types available in Python. [CO1][K1]	6
3-b.	Give the characteristics of the memory hierarchy chart. [CO1][K2]	6
3-c.	Is it necessary for every if block to be accompanied with an else block? Justify your answer with an example (program)? [CO2][K3]	6
3-d.	Write a Python Program to Display the multiplication Table of a number entered by user? [CO2][K3]	6
3.e.	Explain how to create a module. Implement an arithmetic calculator using module.[CO3][K4]	6
3.f.	Explain in detail about dictionaries and its operations. What is a dictionary in Python? Give example. [CO4]	6
3.g.	Describe in detail exception handling with sample program. [CO5]	6

SECTION-C 50

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

4-a.	Write an algorithm and design a flow-chart to find greatest among three numbers. (CO1) [K3]	10
4-b.	Explain the Python development cycle in detail. [CO1][K2]	10

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

5-a.	Define the following with the necessary examples. [CO2] [K2] i. if statement ii. if-else-if statement iii. nested –if statement	10
5-b.	Explain while else statement . Write a Python program that accepts a sequence of lines (blank line to terminate) as input and prints the lines as output (all characters in lower case). [CO2] [K3]	10

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

6-a.	Write short notes on: [CO3][K2] (a.) Keyword Arguments (b.) Defalut Arguments (c.) Lambda functions	10

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| 6-b. | Explain various types of formal arguments using which a function can be called, give example of each. [CO3][K4] | 10 |

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

| 7-a. | Explain packing and unpacking of elements in sequences .How can we return the values in the function using the concept of packing and unpacking?Explain [CO4][K2] | 10 |
| 7-b. | Write a program that has a nested list to store the toppers details. Edit the details and reprint the details.[CO4][K5] | 10 |

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

| 8-a. | Write a Python program to remove all the duplicates lines from the file. [CO5][K3] | 10 |
| 8-b. | Explain need of file handling and its mode in python with example.[CO5][K3] | 10 |

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