Printed Page:-   **Subject Code:-** ACSEH0101

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
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.*

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SECTION A   **20**

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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
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]   10