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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech.

SEM: I - CARRY OVER THEORY EXAMINATION - AUGUST 2022

Subject: Problem Solving using Python

Time: 3 Hours

Max. Marks: 100

General Instructions:

1. The question paper comprises three sections, A, B, and C. You are expected to answer them as directed.
2. Section A - Question No- 1 is 1 marker & Question No- 2 carries 2 marks each.
3. Section B - Question No-3 is based on external choice carrying 6 marks each.
4. Section C - Questions No. 4-8 are within unit choice questions carrying 10 marks each.
5. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A

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1. Attempt all parts:-

- 1-a. Identify the True statement. (CO1) 1
- (a) We use parenthesis () to define a dictionary.
  - (b) dictionary () function is used to create an empty dictionary.
  - (c) Dictionary is a Python data type to store multiple values.
  - (d) In Python dictionary we represent an element in the {key1-value1, key2-value2, } format.
- 1-b. Which of below is not a keyword in python? (CO1) 1
- (a) catch
  - (b) lambda
  - (c) True
  - (d) pass
- 1-c. What is the output of the following? (CO2) 1
- ```
x,y='pqrs','abcd'  
if(x>y):  
    print(y)  
else:
```

`print(x)`

(a) abcd

(b) abrs

(c) pqcd

(d) pqrs

1-d. What does the following code print? (CO2)

1

```
if 5 > 10:
```

```
    print("fan")
```

```
elif 8 != 9:
```

```
    print("glass")
```

```
else:
```

```
    print("table")
```

(a) fan

(b) glass

(c) table

(d) fan glass

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

1

```
def fun1(num):
```

```
    return num + 25
```

```
fun1(5)
```

(a) 5

(b) 25

(c) blank

(d) 30

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

1

```
def add(a, b):
```

```
    return a+5, b+5
```

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

```
print(result)
```

(a) None

(b) 15

(c) 5

(d) (8,7)

- 1-g. Suppose  $t = (1, 2, 4, 3)$ , which of the following is incorrect? (CO4) 1
- (a) `print(t[3])`
  - (b) `t[3] = 45`
  - (c) `print(max(t))`
  - (d) `print(len(t))`
- 1-h. What will be the output of the following Python code? (CO4) 1
- ```
nums = set([1,1,2,3,3,3,4,4])
print(len(nums))
```
- (a) Error, invalid syntax for formation of set
  - (b) 7
  - (c) 8
  - (d) 4
- 1-i. Identify the right way to close a file. (CO5) 1
- (a) `close(file)`
  - (b) `file.closed`
  - (c) `file.close()`
  - (d) `close.file()`
- 1-j. (6) The `readlines()` method returns \_\_\_\_\_ (CO5) 1
- (a) a list of lines
  - (b) str
  - (c) a list of single characters
  - (d) a list of integers

2. Attempt all parts:-

- 2.a. Write any four Code of Ethics and Professional Conduct of a software engineer. (CO1) 2
- 2.b. Write a Python program to check whether a year is a leap year or not. (CO2) 2
- 2.c. What is Lambda functions in python programming? (CO3) 2
- 2.d. What is Packing and Unpacking Sequences in python? (CO4) 2
- 2.e. What are different access methods in which you can open a file? (CO5) 2

## SECTION B

30

3. Answer any five of the following:-

- 3-a. Differentiate Compiler based programming with Interpreter based programming. (CO1) 6

- 3-b. Explain datatypes of python programming language with suitable example. (CO1) 6
- 3-c. Write a python program to isolate all integers values which are greater than 5 from the list below, save the answer in a tuple. (CO2) 6  
A=[3, 99, 4.6, 'pkm', 'hello', 66.98, 32, 5, 2, 10, 'noida', 8.8]
- 3-d. Write a python program that inverts a dictionary. That is, it makes key of one dictionary value of another and vice versa. (CO2) 6
- 3.e. Write a python program to compute the factorial of given number using reduce () function. (CO3) 6
- 3.f. Write a python program to check given string is a valid email address or not. Use regular Expression. (CO4) 6
- 3.g. Write a program that exchanges the contents of two files. (CO5) 6

### SECTION C

50

4. Answer any one of the following:-

- 4-a. What is type conversion? Explain all type conversion methods with appropriate example. (CO1) 10
- 4-b. Write the algorithm and draw the flowchart to convert the binary number to decimal number. (CO1) 10

5. Answer any one of the following:-

- 5-a. Write a python program to display the Floyd's triangle. (CO2) 10  
1  
2 3  
4 5 6  
7 8 9 10  
11 12 13 14 15
- 5-b. Write a python program to Multiply Two Matrices of 3x3 size. Consider values of matrix are predefined. (CO2) 10

6. Answer any one of the following:-

- 6-a. Write a Python program to count numbers of Vowels, Consonants and integers in a given string using functions, also print the sum of integers in the given string. (CO3) 10
- 6-b. Write short notes on: (CO3) 10  
i) Mutability and Immutability  
ii) Namespaces  
iii) Garbage Collection

7. Answer any one of the following:-

- 7-a. Discuss built-in methods of list and sets with suitable example. (CO4) 10
- 7-b. Discuss built-in methods of String and Dictionary with suitable example. (CO4) 10

8. Answer any one of the following:-

- 8-a. Write a python program to create a file named niet.txt, Write ten lines text into the file and print the of count of all the words starting with 'A' in the file. (CO5) 10
- 8-b. Explain Try, except, Raise and Assert with suitable example. (CO5) 10