Printed Page:- Subject Code:- ACSE0101

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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 - SEPTEMBER 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 20

1. Attempt all parts:-

1-a. Which operator can be used to compare two values? (CO1) 1

(a) <>

(b) =

(c) ==

(d) !=

1-b. Which of these collections defines a SET? (CO1) 1

(a) {1,2,3,4}

(b) [1,2,3,4]

(c) {1:2,3:4}

(d) (1,2,3,4)

1-c. What does the following code print to the console? (CO2) 1

```
if 1:
   print(“It is True")
else:
   print(“It is False")
```

(a) Ture

(b) It is True

(c) False

(d) It is False

1-d. What does the following Python program display? (CO2) 1

```
x = 3
if ( x == 0 ):
   print (“Hey”,end=‘’),
elif ( x == 3 ):
   print (“Hello”,end=‘’)
else:
   print(“Hi”,end=‘’)
print (“NIET”)
```

(a) Hey NIET

(b) HeyNIET

(c) Hello NIET

(d) HelloNIET

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

```
def fun1(name, age=20):
      print(name, age)
fun1('NIET','Twenty')
```

(a) NIET 20

(b) NIET Twenty

(c) NIET 20 Twenty

(d) Type Error

1-f. Select which is true for Python function (CO3) 1

(a) A Python function can return only a single value

(b) A function can take an limited number of arguments.

(c) A Python function can return multiple values

(d) Python function doesn’t return anything unless and until you add a return statement

1-g. What will be the output of python code below. (CO4) 1

```
b="Hello World!"
print(b[-5:-2])
```

(a) lro

(b) dlro

(c) orld

(d) orl

1-h. What will be the output of the following Python code? (CO4) 1

```
a=[10,23,56,[78]]
b=list(a)
a[3][0]=95
a[1]=34
print(b)
```

(a) [10,34,56,[95]]

(b) [10,23,56,[78]]

(c) [10,23,56,[95]]

(d) [10,34,56,[78]]

1-i. To open a file c:\scores.txt for reading, we use _____(CO5) 1

(a) f = open(“c:\scores.txt”, “r”)

(b) f = open(“c:\\scores.txt”, “a”)

(c) f = open(“c:\\scores.txt”, “r”)

(d) f = open(“c:\\scores.txt”, “w”)

1-j. Which of the following statements are true? (CO5) 1

(a) When you open a file for reading, if the file does not exist, an error occurs

(b) When you open a file for writing, if the file does not exist, a new file is created

(c) When you open a file for writing, if the file exists, the existing file is overwritten with the new file

(d) All of the mentioned

2. Attempt all parts:-

2.a. What do you understand by IDE? (CO1) 2

2.b. Write a Python program to compute area of square. (CO2) 2

2.c. Write a function in python program to check given number is Even or Odd? (CO3) 2

2.d. What is data structure explain any two data structure used in python? (CO4) 2

2.e. Write a python program to read two lines from a file. (CO5) 2

SECTION B 30

3. Answer any five of the following:-

| | | |
|---|---|---|
| 3-a. | Differentiate Python and C programming language. (CO1) | 6 |
| 3-b. | Write the algorithm and draw the flowchart to check whether the given year is leap year or not. (CO1) | 6 |
| 3-c. | Write Python Programs to print following patterns . (CO2)<br>1<br>010<br>10101<br>0101010 | 6 |
| 3-d. | Discuss break and continue with example and also write a python program to convert time from 12 hour format to 24 hour format. (CO2) | 6 |
| 3.e. | Explain higher order functions with respect to lambda expressions. Write a python code to count occurrences of an element in the list. (CO3) | 6 |
| 3.f. | Discuss the relation between tuples and lists and dictionaries in detail. (CO4) | 6 |
| 3.g. | Explain 5 built exceptions with example. (CO5) | 6 |

SECTION C 50

4. Answer any one of the following:-

| | | |
|---|---|---|
| 4-a. | Write short notes with example: (CO1)<br>1. The Programming cycle for Python.<br>2. Elements of Python.<br>3. Type conversion in Python.<br>4. Operator precedence. | 10 |
| 4-b. | Explain Ethics and IT policy in company. (CO1) | 10 |

5. Answer any one of the following:-

| | | |
|---|---|---|
| 5-a. | Write a program to determine whether the given number is a Harshad Number (If a number is divisible by the sum of its digits, then it will be known as a Harshad Number). (CO2) | 10 |
| 5-b. | Write a program to display the following pattern: (CO2)<br>1<br>2 3 2<br>3 4 5 4 3<br>4 5 6 7 6 5 4<br>5 6 7 8 9 8 7 6 5 | 10 |

6. Answer any one of the following:-

| | | |
|---|---|---|
| 6-a. | Discuss functions in python with its part and scope Explain with example(Take simple calculator with add subtract multiplication and division.) (CO3) | 10 |
| 6-b. | Differentiate iterators and recursion Write a program for recursive Fibonacci series. (CO3) | 10 |

7. Answer any one of the following:-

| | | |
|---|---|---|
| 7-a. | Write Python Program to count the number of characters in a string using dictionaries Display the keys and their values in alphabetical Order. (CO4) | 10 |
| 7-b. | Explain the following by giving suitable code. (CO4)<br>1. List Comprehension<br>2. Packing and Unpacking in tuples | 10 |

8. Answer any one of the following:-

| | | |
|---|---|---|
| 8-a. | Discuss File I/O in python How to perform open, read, write, and close into a file? Write a Python program to read a file line by line store it into a variable. (CO5) | 10 |
| 8-b. | Discuss Exceptions and Assertions in python How to handle exceptions with try finally? Also define uses of raise in python. (CO5) | 10 |