Enrollment No:

End-Term Examination
(CBCS)(SUBJECTIVE TYPE)(OffLine)
Course Name: B.Tech CSE-AI/AI&ML , Semester: I
(Feb-March, 2023)

Subject Code: BAI- 110	Subject: Programming With Python
Time :3 Hours	Maximum Marks :60

Note: Q. 1 is compulsory. Attempt one question each from the Units I, II, III & IV.

Q1 **(2.5*8=20)**

(a) Write a program that takes the name and age of the user as input and displays a message whether the user is eligible to apply for a driving license or not. (the eligible age is 18 years).

(b) Write a program to print tables from 1 to 10.
Eg. Table of 1 : 1 2 3 4 5 6 7 8 9 10
Table of 2 : 2 4 6 8 10 12 14 16 18 20
And so on...

(c) Differentiate between List and tuple with examples.

(d) Differentiate between read() and readline() methods in file handling. Give examples.

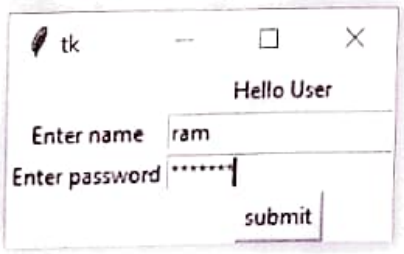
(e) Write a program to raise an exception if the input provided by the user is multiplied by zero.

(f) Differentiate between testing and debugging.

(g) Consider the dataset of the table below showing the forest cover of north eastern states that contains geographical area and corresponding forest cover in sq km along with the names of the corresponding states. Write a program to plot a pie chart to showcase the forest cover of the North Eastern states.

State	GeoArea	ForestCover
Arunachal Pradesh	83743	67353
Assam	78438	27692
Manipur	22327	17280
Meghalaya	22429	17321
Mizoram	21081	19240
Nagaland	16579	13464
Tripura	10486	8073

(h) Design the following GUI using Tkinter library :



UNIT-I

Q2 Write a Python program to construct the following pattern, using a nested for loop. **(10)**

```
    *
   ***
  *****
 *******
*********
 *******
  *****
   ***
    *
```

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Q3 Find the output of the following program segments: (10)

(i) a = 110
while a > 100:
print(a)
a -= 2

(ii) for i in range(20,30,2):
print(i)

(iii) country = 'INDIA'
for i in country:
print (i)

(iv) i = 0; sum = 0
while i < 9:
→ if i % 4 == 0:
→→ sum = sum + i
→ i = i + 2
print (sum)

(v) for x in range(1,4):
→for y in range(2,5):
→→ if x * y > 10:
→→→ break
→ print (x * y)

UNIT-II

Q4 a) Describe two ways to compare two strings in Python with examples. (10)

b) Write a Python program to reverse a string
Sample String : "1234abcd"
Expected Output : "dcba4321"

Q5 a) Consider the following dictionary stateCapital: (10)

stateCapital = {"Assam":"Guwahati",
"Bihar":"Patna","Maharashtra":"Mumbai",
"Rajasthan":"Jaipur"}

Find the output of the following statements:

i. print(stateCapital.get("Bihar"))
ii. print(stateCapital.keys())
iii. print(stateCapital.values())
iv. print(len(stateCapital))
v. del stateCapital["Assam"]

print(stateCapital)

b) Write a program to create a list of elements. Input an element from the user that has to be inserted in the list. Also input the position at which it is to be inserted.

UNIT-III

Q6 Explain catching exceptions using try and except block. (10)

Q7 What is the use of else and finally clause in exception handling? Explain using an example. (10)

UNIT-IV

Q8 a) Explain different types of indexing of arrays in numpy with examples. (10)

b) Create a 2-D array called my array of 3 rows and 5 columns with start value = 4, step size 4 and data type as float. Using the array,

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perform the following :

i. Display the elements in the 1st and 2nd column of the array
ii. Find the transpose of my array
iii. Find the sum of all elements column wise
iv. Find the square root of all elements of my array and divide the resulting array by 2

Q9 Create the following Data Frame Sales containing year wise sales figures for five sales persons in INR. Use the years as column labels, and sales person **(10)**

	2014	2015	2016	2017
Madhu	100.5	12000	20000	50000
Kusum	150.8	18000	50000	60000
Kinshuk	200.9	22000	70000	70000
Ankit	30000	30000	100000	80000
Shruti	40000	45000	125000	90000

i. Display the sales made by all sales persons in the year 2017
ii. Add data to Sales for salesman Sumeet where the sales made are [196.2, 37800, 52000, 78438, ~~38852~~] in the years [2014, 2015, 2016, 2017, ~~2018~~] respectively
iii. Delete the data for the year 2014 from the Data Frame Sales
iv. Change the name of the salesperson Ankit to Vivaan and Madhu to Shailesh
v. Update the sale made by ~~Shailesh~~ in ~~2018~~ to 100000

Shruti° 2017