(ii) import numpy as np

```
arr = np.array([1, 2, 3, 4], ndmin = 5)
print(arr)
print('shape of array :', arr.shape)
```

(iii) import numpy as np

```
arr = np.array([[1, 2, 3, 4, 5], [6, 7, 8,
9, 10]])
print('2nd element on 1st row;',
                              arr[0, 1])
```

(iv) import numpy as np

```
arr = np.array([[1, 2, 3, 4, 5], [6, 7, 8,
9, 10]])
print(arr[0:2, 1:4])
```

(c) What is Matplotlib ? Why is it used ? Write a python program to draw a line in a diagram from position (1, 3) to position (8, 10). (CO5)

H Roll No. .....

TBC–401/TBI–401

B. C. A./B. SC. (IT)
(FOURTH SEMESTER)
END SEMESTER
EXAMINATION, June, 2023

DATA ANALYTICS USING PYTHON

Time : Three Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any *two* sub-questions among (a), (b) and (c) in each main question.

(iii) Total marks in each main question are **twenty**.

(iv) Each sub-question carries 10 marks.

1. (a) What is data science ? Why is it so popular nowadays ? Explain in detail with suitable examples. (CO1)

(b) Write short notes on the following : (CO1)

(i) Types of data

(ii) Challenges present in conventional systems

(c) Draw and explain each phase of data analytics lifecycle. (CO1)

2. (a) What is regression ? Why it is needed ? Explain with its types. (CO2)

(b) In a neighbourhood, 90% children were falling sick due flu and 10% due to measles and no other disease. The probability of observing rashes for measles is 0.95 and for flu is 0.08. If a child develops rashes, find the child's probability of having flu. (CO2)

(c) Write short notes on the following : (CO2)

(i) Sampling and it types

(ii) Multivariate analysis

3. (a) Explain python data types in detail with the help of suitable example. (CO3)

(b) What are different types of operators used in Python ? Explain in detail. (CO3)

(c) How do you define interactive shell in python ? What is memory management in python ? (CO3)

4. (a) Write short notes with suitable python programs on : (CO4)

(i) if-else

(ii) while

(iii) for

(b) Explain types of python function arguments in detail. (CO4)

(c) What do you understand by file handling in python ? Explain with all modes. (CO4)

5. (a) How an array is created in python ? Explain with the help of suitable examples. (CO5)

(b) Write the output of following : (CO5)

(i)
```
import numpy as np
arr = np.array([1, 2, 3, 4, 5])
x = arr.copy()
arr[0] = 42
print(arr)
print(x)
```