

Roll No.										
----------	--	--	--	--	--	--	--	--	--	--

**BCADS First Sessional Tests 2022-23**  
**First Semester**  
**BCADS1101: Python with Data Science**

**Time: 60 Minutes**

**Max Marks: 30**

**(Section A)**

**Q.1: Attempt all Questions:**

**(5×1)**

- a. What do you understand by the term slicing?
- b. How will you convert a string to all uppercase, with an example?
- c. What are Keywords in Python?
- d. What do you understand by pop and remove?
- e. What is Data Science?

**(Section B)**

**Q2. Attempt any Two:**

**(2×7.5)**

- a. Explain the purpose of a loop structure in a programming language. Describe the syntax and semantics of any two loop structures provided by Python.
- b. What are various methods to add and remove elements in a list?
- c. Explain the various fields where data science is used, and how?
- d. What are the useful skills a Data Scientist must have?

**(Section C)**

**Q3. Attempt any ONE:**

**(1×10)**

- a. What is data wrangling? Explain various steps of data wrangling.
- b. What are flow control statements? Using this, write a program to find odd-even numbers for the given input from the user.
- c. Write a program to find out the leap year. Take input from the user to check whether the given year is a leap year or not.

Roll No.									
----------	--	--	--	--	--	--	--	--	--

**BCADS Second Sessional Tests 2022-23**  
**First Semester**  
**BCADS1101: Python with Data Science**

**Time: 3 Hours**

**Max. Marks: 60**

**(Section A)**

**Q1. Attempt All Questions**



**(1\*8)**

- a) What is **loc** and **iloc** functions in pandas?
- b) What is the use of **groupby()** function in Pandas?
- c) What is clustering?
- d) What is concatenation?
- e) Write syntax to read CSV files using pandas?
- f) What is the use of the **ravel()** function in NumPy?
- g) What do you understand by the type-II error in Confusion Matrix.?
- h) Uses of data science in the medical field.

**Section B**

**Q2. Attempt any Two.**

**(6\*2)**

- a) Explain precision, recall, and F1 Score in brief.
- b) What is K-Mean clustering? Explain the steps for K-Means Algorithm.
- c) Difference between Supervised and Unsupervised Learning?
- d) What do you understand by Subplots? Write a program to plot  $\sin(X)$  and  $\cos(X)$  in a single figure.

**Q3 Attempt Any Two.**

**(5\*2)**

- a) Write down the name of various operators used in python? Explain logical and bitwise operators.
- b) What do you understand by the term recursion? Write a simple python program for recursion.
- c) Advantages and disadvantages of python in brief.

**Q4 Attempt Any Two.**

**(5\*2)**

- a) Write down the key skills a Data Scientist must have.
- b) What is data wrangling. Explain steps with a neat and clean diagram.
- c) Explain how Data Science makes Human life easy.

**Q5 Attempt Any Two.****(5\*2)**

- a) What advantages do NumPy arrays have over Python lists? What are the difference between **reshape** and **ravel** functions with an example?
- b) Given two series S1 and S2.

S1	S2
A 39	A 10
B 41	B 10
C 42	D 10
D 44	F 10

Find the output with syntax for the following python pandas statements.

- `S1[:2]*100`
  - `S1 * S2`
  - `S2[::-1]*10`
- c) What is the use of matplotlib? Compare Histogram and Bar chart.

**Q6 Attempt Any Two****(5\*2)**

- a) What do you understand by the terms Support Vectors and Hyperplane? Define the role of Kernel with suitable diagrams.
- b) Explain the Decision tree. What is the use of Entropy and Gini Index?
- c) What do you understand by linear regression and logistic regression?