



18/12/23

DOON UNIVERSITY, DEHRADUN
End Semester Examination of B.Sc. I Semester
Academic Year 2023-24
Dr. Nityanand Himalayan Research and Study Centre
Department of Geology
GES-102–Statistical and machine learning techniques

Time Allowed 2.00 Hours

Maximum Marks: 50

SECTION: A (Very Short Type)

Attempt any FIVE questions.

(1 X 5= 5)

1. What is Mean?
2. What is Standard Deviation?
3. What is Standard Error of Mean?
4. What is Coefficient of Variation?
5. What is Sample Size in Statistics?
6. What is Variance?

SECTION: B (Short)

Attempt any THREE questions.

(Marks: 10 X 3= 30)

1. Elaborate the difference Standard Error of Mean and Coefficient of Variation. Write the formula also.
2. Explain Linear Regression.
3. Elaborate Data Clustering.
4. Explain Probability and its types.

SECTION: C (Graphical Question)

Attempt any ONE question.

(Marks: 15 X 1= 15)

1. Scientists often study the relationship between the size of impact craters and their ages. The following data represents the diameters (in km) of impact craters and their corresponding ages (in millions of years):
Crater Diameter (km): 10, 15, 20, 25, 30;
Crater Age (million years): 50, 70, 90, 110, 130
Calculate the linear regression equation involving 'm' and 'c' for predicting the age of impact craters based on their diameters.

2. Plot the following dataset.

Element Type	Concentration (%)	Atomic Mass (u)	Atomic Number
Oxygen (O)	46.6	15.99	8
Silicon (Si)	27.7	28.08	14
Aluminum (Al)	8.1	26.98	13
Iron (Fe)	5	55.84	26
Calcium (Ca)	3.6	40.07	20