# Assignment No.1 (Course STA 301)

# Spring 2024 (Total Marks 20)

Bc220407299

**Assignment no. 1 (Lessons 10-13)**

**Question 1: Marks: 10**

A quality control manager at a poultry farm is monitoring the weight of eggs produced. The weights of 20 randomly selected eggs (in grams) are as follows:

65, 68, 60, 76, 65, 74, 58, 56, 61, 57, 63, 64, 72, 66, 65, 67, 65, 63, 67, 67.

Find the coefficient of variation.

Solution:

Formula of coefficient of variation

C.V = s/x \* 100

Calculate mean average weight :

Mean=1299/20

=64.95

The formula for the standard deviation is as:

|  |  |
| --- | --- |
|  |  |
| 65-64.95 | 0.0025 |
| 68-64.95 | 9.3025 |
| 60-64.95 | 24.5025 |
| 76-64.95 | 122.3025 |
| 65-64.95 | 0.0025 |
| 74-64.95 | 81.7025 |
| 58-64.95 | 48.3025 |
| 56-64.95 | 80.1025 |
| 61-64.95 | 15.6025 |
| 57-64.95 | 63.2025 |
| 63-64.95 | 3.8025 |
| 64-64.95 | 0.9025 |
| 72-64.95 | 49.7025 |
| 66-64.95 | 1.1025 |
| 65-64.95 | 0.0025 |
| 67-64.95 | 4.2025 |
| 65-64.95 | 0.0025 |
| 63-64.95 | 3.8025 |
| 67-64.95 | 4.2025 |
| 67-64.95 | 4.2025 |

S =

=

C.V =

**=8.44%**

**Question 2: Marks: 10**

At a large manufacturing company, the following is a record of the working hours that were logged for 32 different personnel. The five-number summary should be used to check the symmetry of the data.

13, 23, 25, 30, 33, 36, 26, 24, 23, 28, 22, 25, 26, 29, 19, 23, 25, 30, 40, 39, 36, 38, 35, 32, 31, 30, 37, 33, 27, 26, 28, 24.

Arrange the data in ascending order:

13, 19, 22 ,23 ,23 ,23 ,24 ,24 ,25 ,25 ,26 ,26 ,26 ,27 ,28 ,28 ,29 ,30 ,30 ,30 ,31 ,32 ,33 ,33 ,35 ,36 ,36 ,37 ,38 ,39 ,40

Now, let’s find the quartiles and median:

Median (Q2) : The median value of the data.

Q2 = 28

Q2 (First Quartile): The median of the lower half of the data.Q1 = 24

Q3(Third Quartile):The median of the upper half of the data. Q3 = 33

Minimum value = X =13

Maximum value =

Id the data were perfectly symmetrical, the following would be true:

1.The distance from Q1 to the median would be equal to the distance from the median to the Q3.

**In this data Q1 to Q2 = 4 and Q2 to Q3 = 5**

2.The distance from X to Q1 would be equal to the distance from Q3 to

**X to Q1 =11 and Q3 to Xm = 7**

**So this data is not symmetrical but the data is slightly positively skewed.**