BRAC UNIVERSITY
Inspiring Excellence

STA201 Assignment 2 (Summer 2022)

Question 1

Find an estimate of the Variance, Standard Deviation & Coefficient of Variation. of the following data for the marks obtained in a test by 92 students.

Marks (X)	$0 \leq X < 10$	$10 \leq X < 20$	$20 \leq X < 30$	$30 \leq X < 40$	$40 \leq X < 50$
Frequency (f)	8	18	24	25	17

Question 2

For a distribution Karl Pearson's coefficient of skewness is 0.64, Variance is 40 and mean is $\sqrt{(X + Y + Z)}$ Find mode and median. [Here X,Y,Z = First 3 digits of you Student ID]

Question 3

The owner of a used car dealership is interested in researching how an automobile's age and selling price are related. Below is a sample of 12 used vehicles that the dealership sold during the course of the previous year.

Age (years)	9	7	11	12	8	7	8	11	10	14	6	5
Price (thousand $)	8.1	X-4	2.8	X-6	$\frac{X}{2}$	X	7.6	$\frac{X}{2}+3$	8.7	X-2	8.6	$X+\frac{1}{2}$

Here, X= 10

(a) Draw a scatter diagram and comment on the relation between the age of the car and its selling price.
(b) Determine the Pearson correlation coefficient and the coefficient of determination and interpret it.

Question 4

The iodine value is the amount of Iodine necessary to saturate a sample of 100 g of oil.
In the table below the first row states Iodine and second row states oil respectively.

132.0	129.0	120.0	113.2	105.0	92.0	84.0	83.2	88.4	59.0	80.0	81.5	71.0
46.0	48.0	51.0	52.1	54.0	52.0	59.0	58.7	61.6	64.0	61.4	54.6	58.8

a. Determine the regression equation of 100 g of oil on the amount of Iodine. .
b. Interpret the model.
c. What is the predicted price when the amount of Iodine is 88.
d. Comment on the goodness of fit of the model.

Question 5

A study on a range of automotive lubricants reported the following data on oxidation-induction time (min) for various commercial oils:

Sample 1:
87 103 130 160 180 195 132 145 211 105 145 153
152 138 87 99 93 119 129

Sample 2:
99 102 110 33 56 112 130 111 124 155 201 209 103 66 84 75
107 202 59

For which sample of commercial oils, the relative variability of oxidation-induction time is higher?