STA201 Assignment 2

Question 1

150 steel workshops have the following distribution of average number of workers in various hourly wage brackets:

Wage Bracket:	500 – 600	600 – 700	700 – 800	800 – 900	900 – 1000
Number of workshops:	17	28	72	21	12
Average Number of Workers per workshop:	15	11	9	6	5

Find the mean salary paid to the workers.

Question 2

The mean of 120 observations was calculated to be 76. Later on, it was found that two observations were misread as 85 and 43 instead of 185 and 98. Find the correct mean.

Question 3

The mean monthly salaries paid to 100 employees of a company were tk. 5000. The mean monthly salaries paid to male and female employees were tk. 5200 and tk. 4200 respectively. Determine the percentage of males and females employed by the company.

Question 4

A group of friends are going on a day out to Project Hilsha. They divided their route into 3 equal parts, and planned on maintaining an average speed of 68 km/h on their way to their destination. Their speed for the first and second part were 72 km/h and 88 km/h respectively. What speed should they maintain for the third part of their journey if they are to achieve their target average speed?

Question 5

Let's assume you bought a new car with Tk. 3,500,000. The car depreciates in value by 40% after the first year, 20% after the second year, and 10% after the third year onward. What is the average rate of depreciation per year after three years? Therefore, what will be the value of the car after three years of use?

Question 6

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

Oxidation-Induction Time: 87 103 130 160 180 195 132 145 211 105
145 153 152 138 87 99 93 119 129

- a. Calculate the sample variance and standard deviation for the oxidation-induction time.
- b. If the observations were converted and displayed in hours, what would be the resulting values of the sample variance and sample standard deviation? Answer without actually performing the conversion.

Question 7

Blood cocaine concentration (mg/L) was determined both for a sample of individuals who had died from cocaine-induced excited delirium (ED) and for a sample of those who had died from a cocaine overdose without excited delirium; survival time for people in both groups was at most 6 hours.

ED:	0	0	0	0	0.1	0.1	0.1	0.1	0.2	0.2
	0.3	0.3	0.3	0.4	0.5	0.7	0.8	1	1.5	2.7
	2.8	3.5	4	8.9	9.2	11.7	21			

Non-ED:	0	0	0	0	0	0.1	0.1	0.1	0.1	0.2
	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.8
	0.9	1	1.2	1.4	1.5	1.7	2	3.2	3.5	4.1
	4.3	4.8	5	5.6	5.9	6	6.4	7.9	8.3	8.7
	9.1	9.6	9.9	11	11.5	12.2	12.7	14	16.6	17.8

a. Determine the three quartile values for blood cocaine concentration for both ED and Non-ED samples.
b. Construct a comparative boxplot (two boxplots on the same set of axes, one above the other), and use it as a basis for comparing and contrasting the ED and non-ED samples.