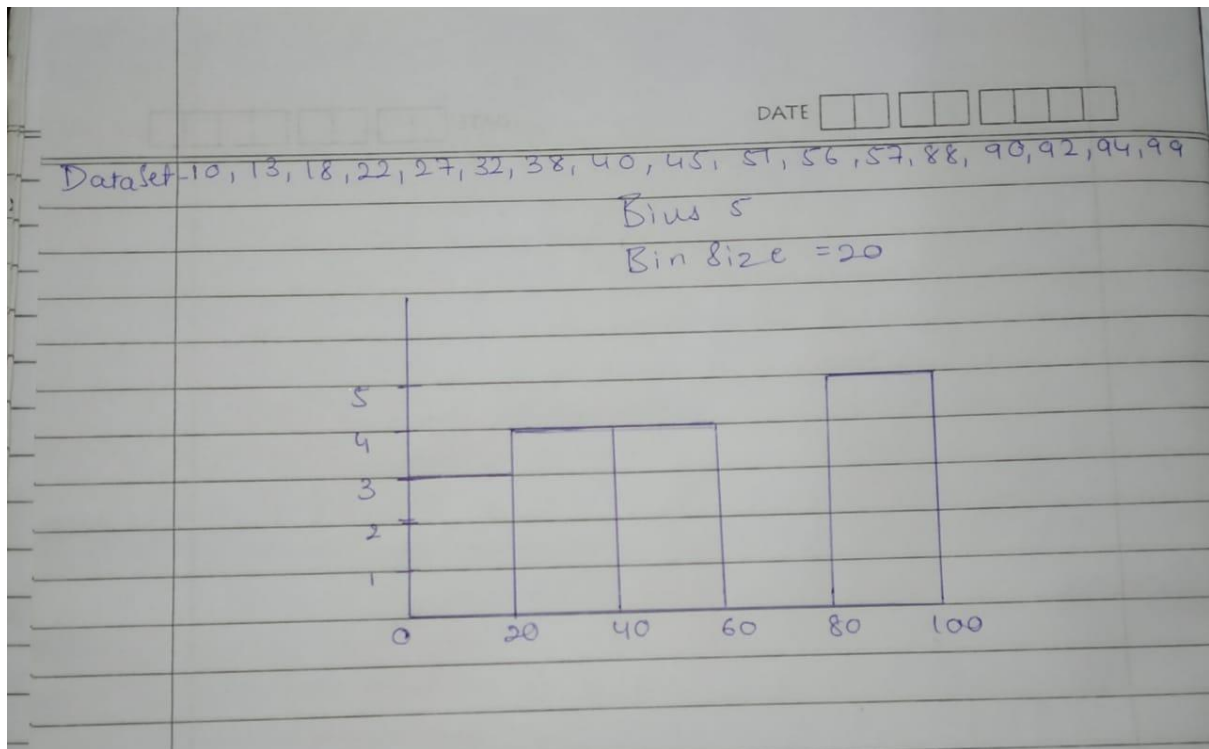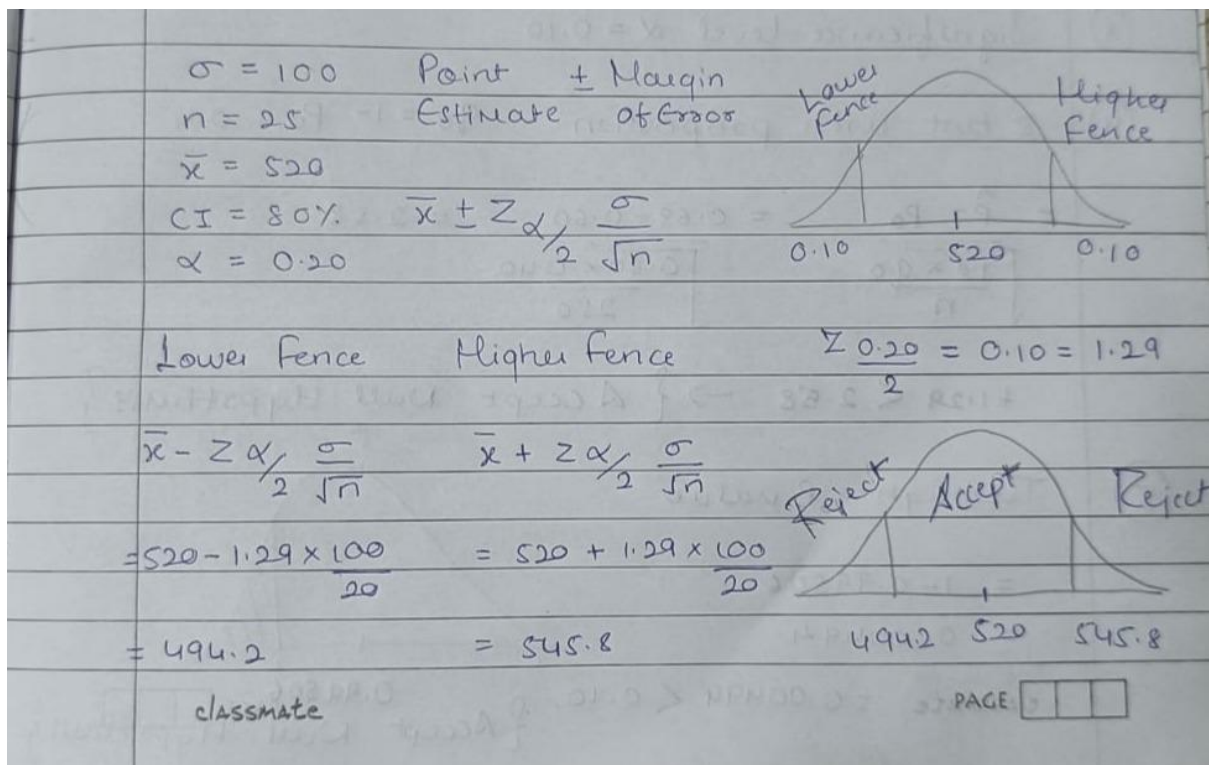Que 1) Plot a histogram,

10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88, 90, 92, 94, 99

Que 2) In a quant test of the CAT Exam, the population standard deviation is known to be 100. A sample of 25 tests taken has a mean of 520. Construct an 80% CI about the mean.

Que 3) A car believes that the percentage of citizens in city ABC that owns a vehicle is 60% or less. A sales manager disagrees with this. He conducted a hypothesis testing surveying 250 residents & found that 170 residents responded yes to owning a vehicle.

a.   State the null & alternate hypothesis.
b.   At a 10% significance level, is there enough evidence to support the idea that vehicle owner in ABC city is 60% or less.

① $H_0 = P_0 \leq 60\%$
   $H_1 = P_0 > 60\%$

   $\leftarrow 2.58$

② $\dfrac{170}{250} \times 100 = 68\%$ 0.68

   $+1.29$

③ Significance level $\alpha = 0.10$

④ Z test with preposition $q_0 = 1 - P_0 = 0.4$

$$= \dfrac{\hat{P} - P_0}{\sqrt{\dfrac{P_0 \times q_0}{n}}} = \dfrac{0.68 - 0.60}{\sqrt{\dfrac{0.60 \times 0.40}{250}}} = 2.58$$

   $+1.29 < 2.58 \rightarrow \{ Accept \ Null \ Hypothesis \}$

⑤ Through P value

   $= 1 - 0.99506$
   $= 0.00494$

   classmate $= 0.00494 < 0.10$ $\{ Accept \ Null \ Hypothesis \}$

   0.99506

Que 4) What is the value of the 99 percentile?

2,2,3,4,5,5,5,6,7,8,8,8,8,8,9,9,10,11,11,12

Que4   Value of 99 percentile

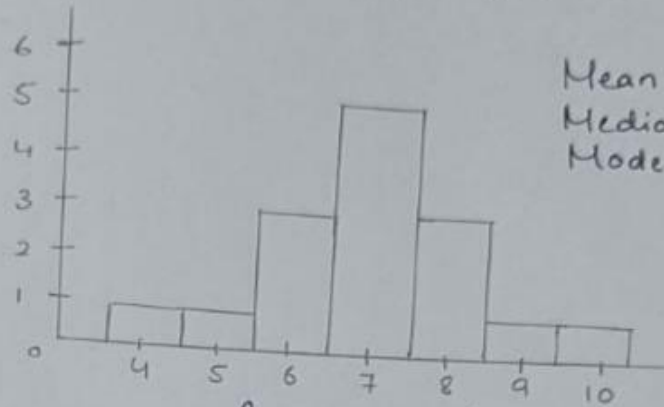2, 2, 3, 4, 5, 5, 5, 6, 7, 8, 8, 8, 8, 8, 9, 9, 10, 11, 11, 12

$$Value = \frac{Percentile \times (n+1)}{100}$$

$$= \frac{99}{100} \times (20+1) = 20.8 \ Index$$

$$= 11.81$$

Que 5) In left & right-skewed data, what is the relationship between mean, median & mode?

Draw the graph to represent the same.

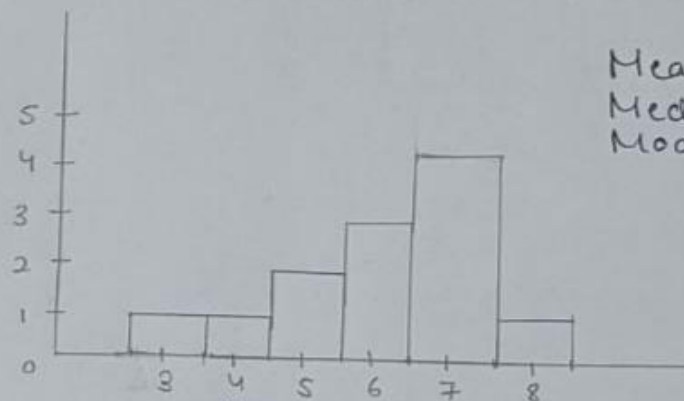Data set : Age of Children visiting park

4, 5, 6, 6, 6, 7, 7, 7, 7, 7, 8, 8, 8, 9, 10
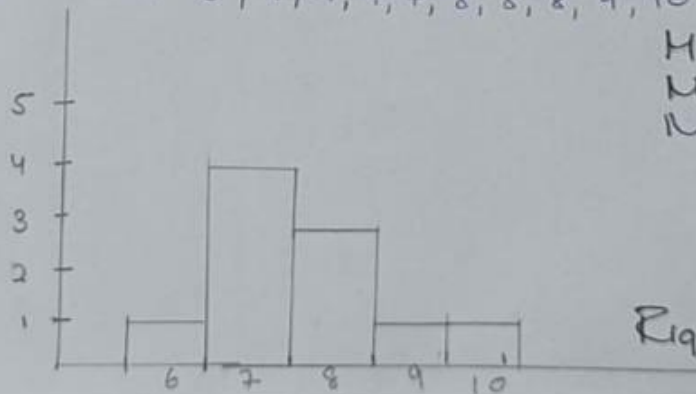

Mean 7
Median 7
Mode 7

Symmetrical

Data Set : 3, 4, 5, 5, 6, 6, 6, 7, 7, 7, 7, 8

Mean 59.16
Median 6
Mode 7

Left Skewed

Dataset : 6, 7, 7, 7, 7, 8, 8, 8, 9, 10

Mean 7.7
Median 7.5
Mode 7

Right Skewed