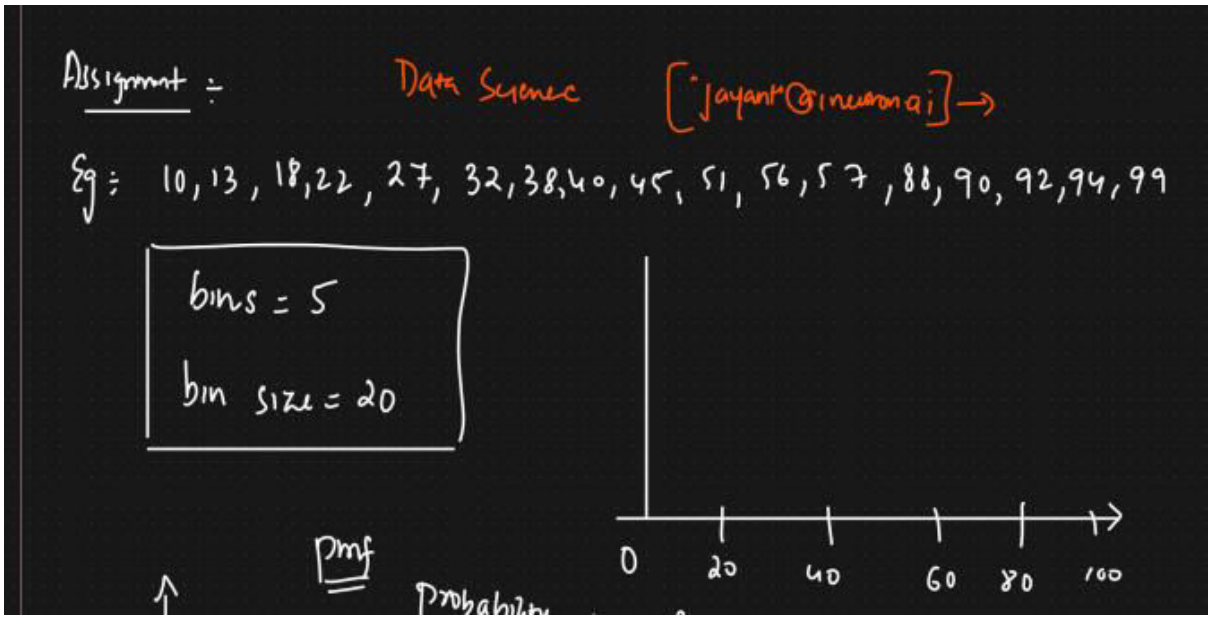
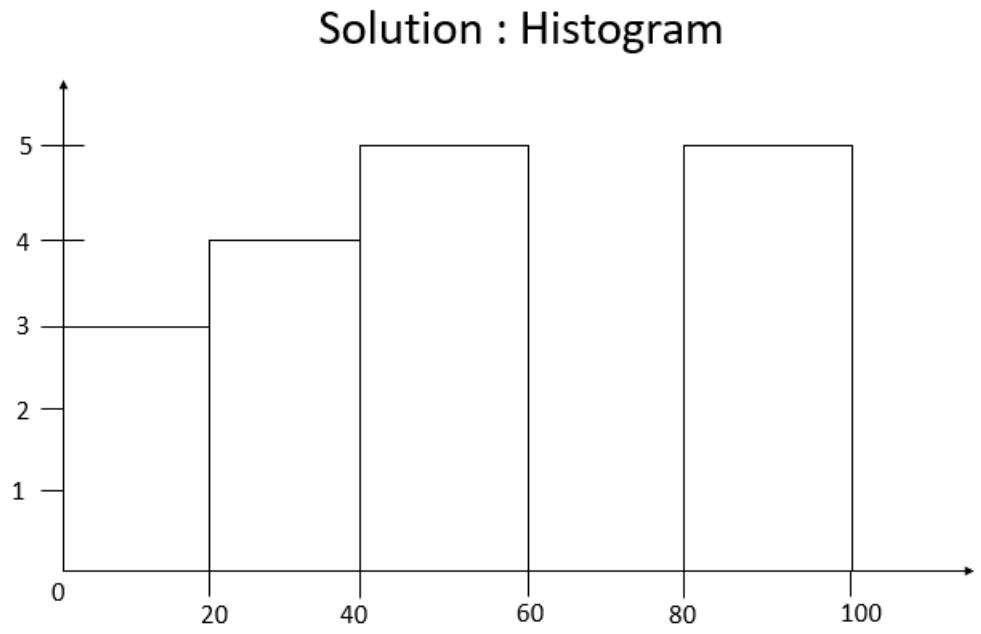
Que 1) Plot a histogram,

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



Answer 1)=>



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.

Ans 2):=>

Ans 2 ⇒ $\sigma = 100$; $n = 25$; $\bar{x} = 520$; CI = 80%.

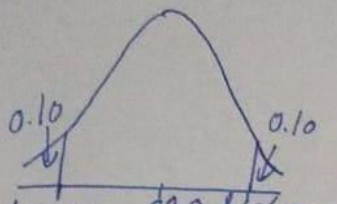
This will need z-score table to be checked for Z test due to population standard deviation being given to us.

C.I. = 80%

$\alpha = 1 - CI$

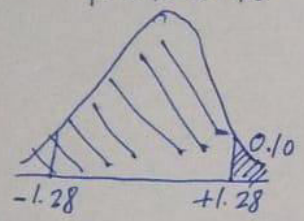
$= 1 - 0.80 = \boxed{0.20}$

α = Significance value = 0.20



Margin of Error = $Z_{\alpha/2} \left[\frac{\sigma}{\sqrt{n}}\right]$ ⇒ Standard Error

$1 - 0.1 = 0.90$



$Z_{\alpha/2} = Z_{\frac{0.20}{2}} = Z_{0.10} = 1.28$

$\frac{\sigma}{\sqrt{n}} = \frac{100}{\sqrt{25}} = \frac{100}{5} = 20$

Lower Fence $= \bar{x} - Z_{\alpha/2} \times \frac{\sigma}{\sqrt{n}}$

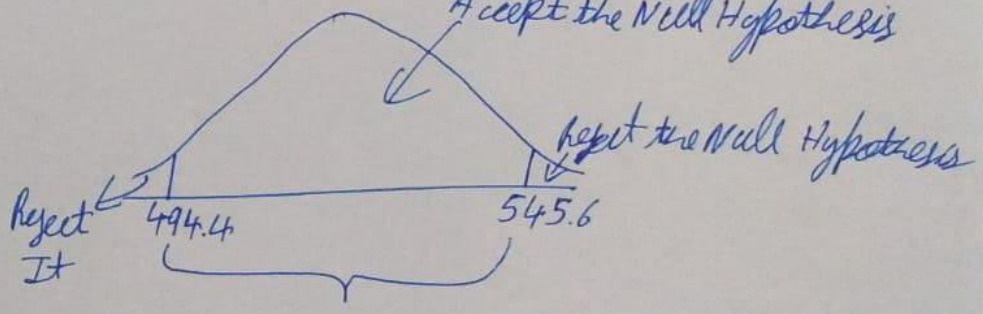
$= 520 - 1.28 \times 20$

$= 494.4$

Higher Fence $= \bar{x} + Z_{\alpha/2} \times \frac{\sigma}{\sqrt{n}}$

$= 520 + 1.28 \times 20$

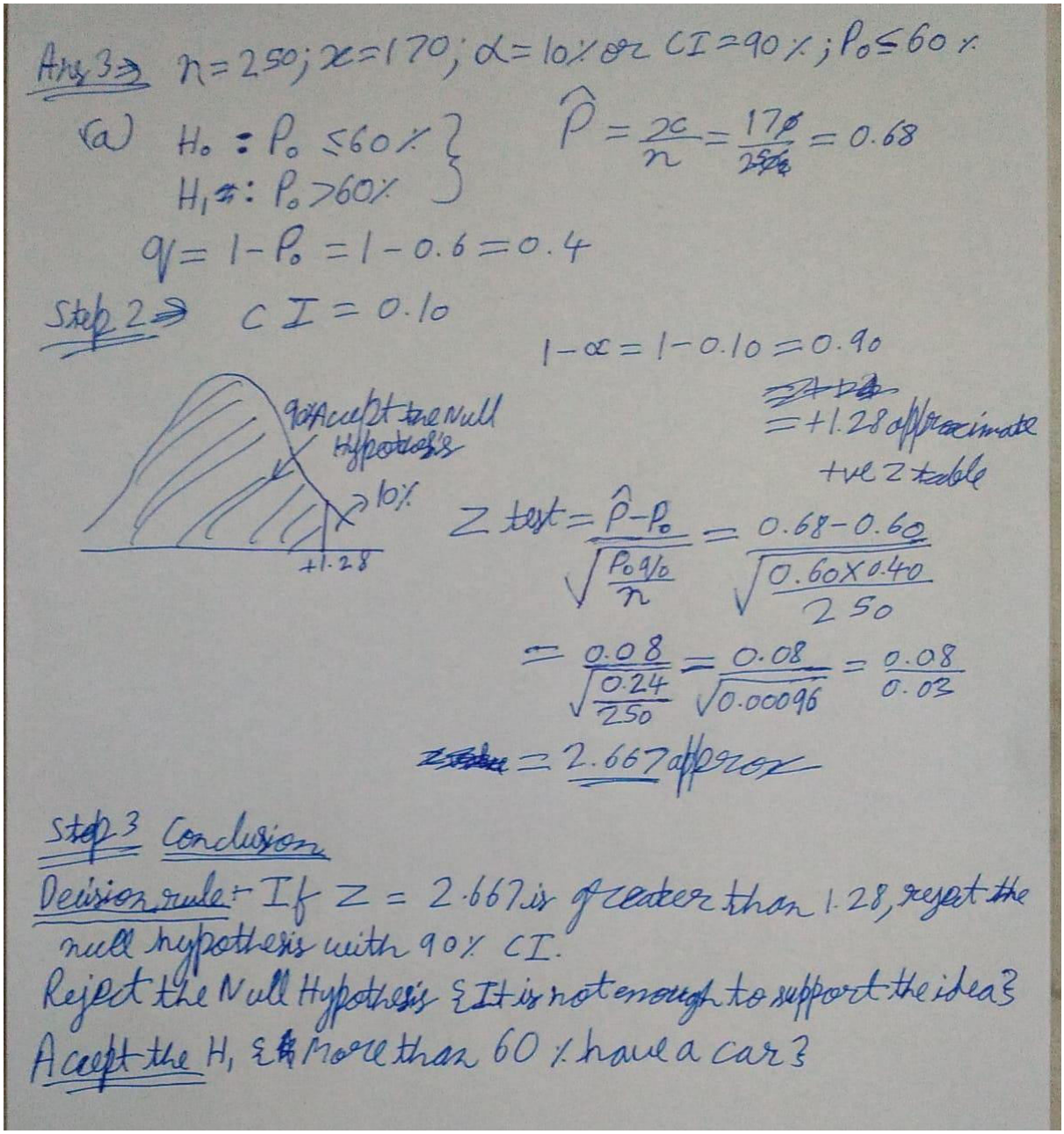
$= 545.6$



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.

Ans3 =>



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

Ans 4=> Percentile Rank of X = (# of values below x * 100)/n

Index of 99th percentile= (Percentile*(N))/100

=(99*20)/100

=19.8 Index

Or the mean of the last two values = 11+12/2 = 23/2 = 11.5

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

Draw the graph to represent the same.

Ans 5 =>

If the distribution of data is skewed to the left, the mean is less than the median, which is often less than the mode. If the distribution ofdata is skewed to the right, the mode is often less than the median, which is less than the mean.

if the distribution is normal Mean = Mode = Median,

If the distribution is left skewed, Mean < Median < Mode

If the distribution is right skewed, Mode < Median < Mean

To State that :