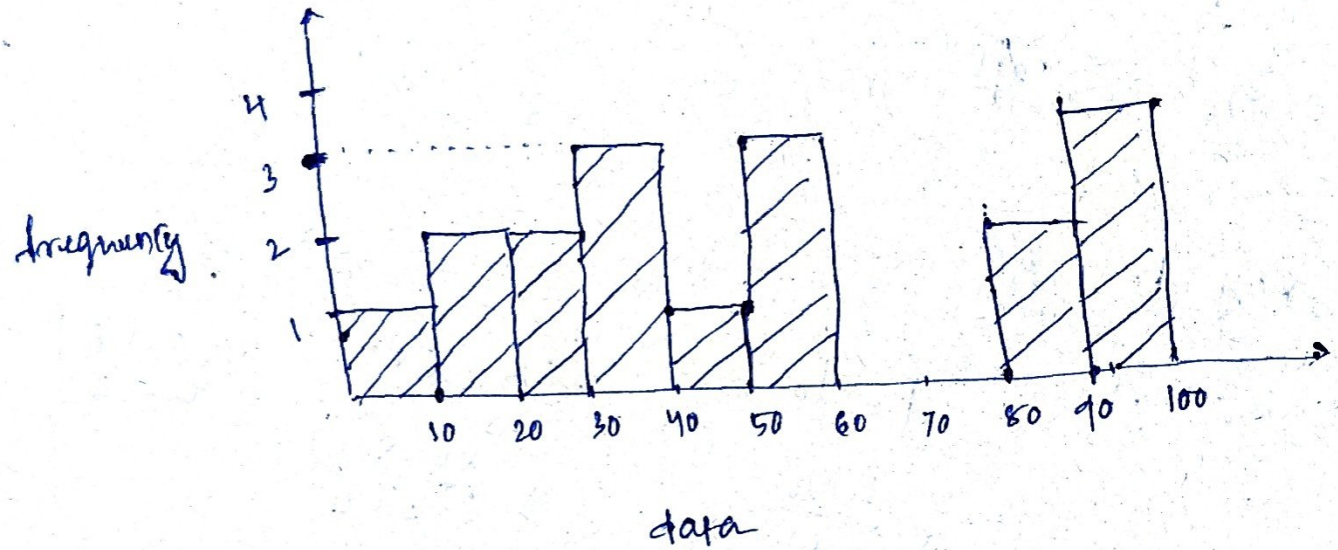
Assign-1

Que 1) Histogram

{10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 68, 90
92, 94, 99}

Say bin size = 10



Que 2)

$\sigma = 100$ $\quad n = 25$ $\quad \bar{x} = 5.20$

CI = 80% ; so $\alpha = 1 - .8 = 0.2$

(E) margin of error $= z_{\alpha/2} * \frac{\sigma}{\sqrt{n}}$

$= z_{0.1} * \frac{100}{\sqrt{25}}$

$= 1.28 \times 20 = 25.6$

lower limit $= \bar{x} - E = 494.4$
upper limit $= \bar{x} + E = 545.6$

} we are 80% confidence that $494.4 < \mu < 545.6$

Que 3)

$P_0 = \leq 60\%$

$n = 250 \quad \hat{P} = \frac{170}{250} \times 100 = 68\%$

$H_0 : P_0 \leq 60\%$

$H_a : P_0 > 60\%$

$\alpha = 0.1$, from z-table, decision boundary :- -1.28

1-tail test

$q_0 \geq 40\%$

say $P_0 = 60\%$

$$z\text{-test} = \frac{\hat{P} - P_0}{\sqrt{\frac{P_0 q_0}{n}}} = \frac{.68 - .60}{\sqrt{\frac{.6 \times .4}{250}}} = \frac{2.581}{0.489}$$

which is within our range.

as $2.581 > -1.28$

So accept the null hypothesis

as $\hat{P}$ is always $> P_0$ (any) here

z-test value can't be negative ever

So for values of P_0; accept null hypothesis.

Que 4>

99 percentile.

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

$n = 20$

$$\frac{99}{100} \times (20+1) = 20.79$$

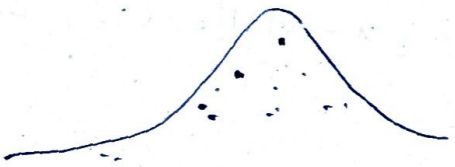
20th index

value = '12'

Que 5> left skewed data

ex:- life span of human

mode > median > mean



right skewed data

ex:- wealth of individual

mean > median > mode