Day 5

Assignment 1

Q] In the Quant Test of CAT exam, the population standard deviation is known to be 100. A sample of 25 test Takers has a mean of 520. Construct a 80% C.I about mean.

Solution

→ we know that

$\sigma = 100$, $n = 25$, $\bar{x} = 520$, C.I = 80%, Significance value (α) = 0.2

Step 1: Since the population S.D is given we will be using the Z-Test.

Formula:

C.I: Point Estimate ± Margin of Error.

Step 2: Measure of error = $Z\alpha/2 \frac{\sigma}{\sqrt{n}}$

$= Z_{0.1}\left(\frac{100}{\sqrt{25}}\right)$

$= 1.29\left(\frac{100}{25}\right)$

$= 25.8$

Step 3: Therefore,

Lower Limit = $\bar{x} - 25.8$

$= 520 - 25.8$

$= 494.1$

Higher Limit = $\bar{x} + 25.8$

$= 520 + 25.8$

$= 545.8$