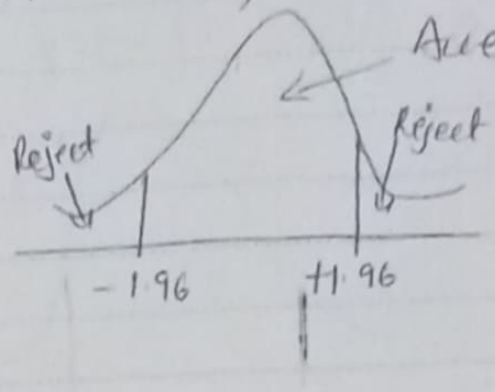
Assignment - 5

Q. T-shirt (need to find the CI)

let us assume $n_1 = 500$, $n_2 = 500$

CI = 95% → 1.96

x_1 → L-tshirts = 300, x_2 → XL-tshirts = 200,



Z-test $= \dfrac{\hat{P}_1 - \hat{P}_2}{\sqrt{\hat{P}(1-\hat{P})}\sqrt{\frac{1}{n_1}+\frac{1}{n_2}}}$

$\hat{P}_1 = \dfrac{300}{500} = 0.6$ $\hat{P}_2 = \dfrac{200}{500} = 0.4$

$\hat{P} = \dfrac{x_1 + x_2}{n_1 + n_2} = \dfrac{300+200}{500+500} = \dfrac{500}{1000} = 0.5$

Z-test $= \dfrac{0.6 - 0.4}{\sqrt{0.5(1-0.5)}\sqrt{\frac{1}{500}+\frac{1}{500}}}$

$= \dfrac{0.2}{\sqrt{0.25}\sqrt{\frac{2}{500}}} = \dfrac{0.2}{0.5 \times \sqrt{0.004}}$

$= \dfrac{0.2}{0.5 \times 0.0632} = \dfrac{0.2}{0.0316} = 6.329$

$6.329 > 1.96$ (Reject Null Hypothesis)