1 ueth:- Blood glucose levels for obese patients have a mean of 100 with standard deviation of 15. A researcher thinks that a diet high in raw cornstarch will have a positive effect on blood glucose level. A sample of 36 patients who have tried the raw cornstarch diet have a mean glucose level of 108. Test the hypothesis that the raw cornstarch had an effect or not.

Solution:-

H_0 (Null Hypothesis): $\mu = 100$ i.e. raw cornstarch will have no effect on blood glucose level

H_1 (Alternative Hypothesis): $\mu > 100$ i.e. raw cornstarch will have positive effect on blood glucose level

Let us take significance level as 0.05 or 95% confidence interval.

Here, Population Mean $= \mu = 100$

Sample Mean $= \bar{x} = 108$

Sample size $= n = 36$

Population Standard Deviation $= \sigma = 15$

Hence $Z = \dfrac{\bar{x} - \mu}{\sigma/\sqrt{n}} = \dfrac{108 - 100}{15/\sqrt{36}} = \dfrac{8}{15/6} = 3.2$

Probability $(Z > 3.2)$ $= 1 -$ Probability $(Z < 3.2)$

$= 1 - 0.9993 = 0.0007$

As $0.0007 <$ significance level 0.05, Hence we reject the Null Hypothesis, i.e. raw cornstarch will have positive effect on blood glucose level.