**Experiment-V**

**Confidence Intervals:**

**Formula: Confidence Intervals =**

R:Commands

> # 95% confidence interval

xbar=

sd=

n=

zalfaby2 =qnorm(0.975)

max error= zalfaby2\*sd/sqrt(n)

max error

left=xbar- max error

left

right= xbar+ max error

right

**(**left ,right)

**Output:-** the 95% confidence interval is

**(**left ,right)

Note

zalfa/2 = qnorm(0.975) for 95%,

zalfa/2 = qnorm(0.95) for 90 %,

zalfa/2 = qnorm(0.99) for 98%,

zalfa/2 = qnorm(0.995) for 99 %

Problem 1: The mean and Standard of a population are 11795 and 14054 respectively What can with 95% confidence about the maximum error if =11795 and n=50. And also construct 95% confidence interval for true mean

Aim : To find 95% confidence Interval for the true mean

**Formula Confidence Intervals:** ,

**R-Commands:**

|  |
| --- |
| xbar=11795  sd=14054  n=50  qt=qnorm(0.975)  1.959964  se=qt\*sd/sqrt(50)  se  3895.498  left=xbar-se  left  [1] 7899.502  right=xbar+se  rightt  15690.5  **Output:-** the 95% confidence interval is **(**7899.502, 15690.5)    Problem 2: A random sample of size 81 was taken whose variance is 20.25 and mean is 32 , construct 98% confidence interval  Aim: To find 98% confidence interval  **Formula Confidence Intervals:**  xbar=32  Xbar  32  Variance =20.25  Variance  20.25  sd=sqrt(variance)  Sd  4.5  n=81  n  81  zalfaby2 =qnorm(0.999)  zalfaby2  3.090232  max error= zalfaby2\*sd/sqrt(n)  max error  1.515116  left=xbar- max error  left  30.45488  right= xbar+ max error  right  33.54512  **(**left ,right)  **(**30.45488,33.54512)  **Output:-** the 98% confidence interval is  **(**30.45488,33.54512) |
|  |
|  |