**Standard Error:** The Standard Deviation of a sampling distribution is known as Standard Error.

**Standard Error of sample mean**

**Case 1:** Population is very large and sample size is small, (less than 5% of the population).

**Case 2:** Population is finite, sampling without replacement or sample size is large

i.e., (5% or greater than 5% of the population).

Note: the factor

Known as **Finite Population Correction (FPC)** and uses for adjusting the variability in large samples.

**Standard Error of sample proportion**

**Case 1:** Population is very large and sample size is small, (less than 5% of the population).

**Case 2:** Population is finite, sampling without replacement or sample size is large

i.e., (5% or greater than 5% of the population).

**Confidence Intervals**

**Z – Distribution (Standard Normal Distribution) and student’s – t distribution**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample Size** | **Population Standard Deviation** | **Sample statistic** | **Sampling Distribution** |
|  | Known | Known | Z |
|  | Known | Known | Z |
|  | Unknown | Known | Z |
|  | Unknown | Known | T |

1. Sometimes, unknown but data set is provided, then we calculate by using the formula.
2. When unknown and , either is provided already or we have to calculate by the following formulas.
3. When unknown and , then, either is provided already or we have to calculate by the following formulas.