**Properties of sampling distribution of means**

**1)** and

**2**) (for with replacement sample).

**3a)** is the original .

**3b**) is the original is not normal but the sample size is large, i.e., .

*This property (3) is called the* ***central limit theorem*** *(CLT) for the sampling distribution of (SDM)*

**Properties of the sampling distribution of**

*For a population with proportion*

1)

2)

3) *is approximately normal with mean and standard deviation (SE) provided . This property is called the* ***central limit theorem (****CLT) for the SDP.*

The standard error (S.E.) of is the same as the standard deviation of , i.e.,

When *p* is unknown, the standard error (S.E.) of is estimated by

**Section 6.5: Estimation of Mean**

Equation 6.6, pg. 176

**T-Interval of :** A T-Interval of when is unknown is given by

which follows from the fact that and for an between 0 and 1

where is the (1-)-th quantile of a -distribution with degrees of freedom.

**Example**: A 95% (i.e., ) T-CI of is

**Section 6.7: Estimation of Variance and SD**

Equation 6.11, pg. 185

The point estimate of is the sample variance given by .

A confidence interval estimate of is given by

The above CI estimate of follows from the fact that is a chi-squared distribution with degrees of freedom and for an between 0 and 1

Or,

**Example**: A 95% (i.e., ) CI of is If , i.e., 5, then the 95% CI estimate of is obtained from .

**Section 6.8: Estimation of Binomial Distribution**

The point estimate of is the sample proportion given by .

Equation 6.19, pg. 189

A confidence interval estimate of is given by

which follows from the fact that given that and

**Example**: A 95% (i.e., ) CI of is