FORMULA SHEET

**Definition 1.1 – Mean**

This finds the mean of a sample:

**Definition 1.2 – Variance**

The variance of a sample:

**Definition 1.3 – Standard Deviation**

The standard deviation of a sample of measurements is the positive square root of the variance:

**Definition 2.6 – Probability**

If the events form a sequence of pairwise mutually exclusive events then:

**Definition 2.7 – Permutations**

The number of ways of ordering n distinct objects taken r at a time:

**Definition 2.8 – Combinations**

The number of subsets, *r*, that can be formed the *n* objects:

**Definition 2.9 - Conditional Probability**

The conditional probability of an event *A* given that event *B* has occurred:

**Definition 2.10 – Independence**

Two events are independent if any of the following is true:

**Definition 2.11 – Law of Total Probability/Baye’s Rule**

The event-composition approach to solving probability problems:

**Definition 3.4 – Expected Value**

**Definition 3.5 - Standard Deviation**

**Definition 3.7 – Binomial Distribution**

A random variable Y is said to have a binomial distribution based on n trials

with success probability p:

**Definition 3.8 – Geometric Probability Distribution**

A random variable Y is said to have a geometric probability distribution if and

only if:

**Definition 3.9 – Negative Binomial Probability Distribution**

A random variable Y is said to have a negative binomial probability distribution

if and only if:

**Definition 3.10 – Hyper Geometric Probability Distribution**

A random variable Y is said to have a hyper geometric probability distribution if and

only if: