**Definition 3.3: The probability distribution of discrete variable Y can be represented by a formula that provides**

**Definition 3.4: The expected of a discrete random variable Y:**

**Definition 3.5: Variance of a discrete random variable Y**

**Definition 3.7: Binomial Probability Distribution**

**Theorem 3.7: Expected and variance of Binomial Distribution**

**Definition 3.8: Geometric Probability Distribution**

**Theorem 3.8: Expected and Variance of Geometric Distribution**

**Definition 3.9: Negative Binomial Probability Distribution**

**Theorem 3.9: Expected and Variance of Negative Binomial Distribution**

**Definition 3.10: Hypergeometric Probability Distribution**

**Theorem 3.10: Expected and Variance of Hypergeometric distribution**

**Definition 3.11: Poisson Probability Distribution**

**Theorem 3.11: Expected and Variance of Poisson distribution**

**Theorem 3.14: Tchebysheff’s Theorem**

**Definition 4.1: The distribution function of a random variable Y**

**Definition 4.3: The probability density function of continuous random variable Y where the derivative exists**

**Theorem 4.3: The probability random variable Y fall in the interval [a, b]**

**Definition 4.5: The expected of continuous random variables**

**Theorem 4.4: The expected of a function of Y (g(Y))**

**Definition 4.6: Uniform Probability Distribution:**

**Theorem 4.6: The expected and variance of uniform distribution:**

**Definition 4.9: Gamma Distribution:**

**Theorem 4.8: Expected and variance of gamma distribution**

**Definition 4.11: Exponential Distribution**

**Theorem 4.10: Expected and Variance of Exponential Distribution**