



**ST. LAWRENCE HIGH SCHOOL**  
A JESUIT CHRISTIAN MINORITY INSTITUTION



**SOLUTION OF WORKSHEET-10**

**SUBJECT - STATISTICS**

Term : 1<sup>st</sup>

**Topic – BINOMIAL DISTRIBUTION**

**Class: XII**

**Full Marks: 15**

**Date:10.06.2020**

Q1. Select the correct alternative of the following questions.

- (i) The expectation in Binomial distribution ( n, p ) is  
a) **np**                      b)  $n(1-p)$                       c)  $p(1-p)$                       d) none of these
- (ii) The variance in Binomial distribution ( n, p ) is  
a) np                      **b) np(1-p)**                      c)  $p(1-p)$                       d) none of these
- (iii) For a binomial distribution mean is ..... than its variance  
a) equal                      **b) greater**                      c) smaller                      d) none of these
- (iv) The binomial distribution( n, p) is symmetric if and only if  
**a)  $p = \frac{1}{2}$**                       b)  $p > \frac{1}{2}$                       c)  $p < \frac{1}{2}$                       d) none of these
- (v) The binomial distribution( n, p) is positivey skewed if and only if  
a)  $p = \frac{1}{2}$                       b)  $p > \frac{1}{2}$                       **c)  $p < \frac{1}{2}$**                       d) none of these
- (vi) The binomial distribution( n, p) is negatively skewed if and only if  
a)  $p = \frac{1}{2}$                       **b)  $p > \frac{1}{2}$**                       c)  $p < \frac{1}{2}$                       d) none of these
- (vii) The binomial distribution( n, p) attains maximum variance at  
**a)  $p = \frac{1}{2}$**                       b)  $p > \frac{1}{2}$                       c)  $p < \frac{1}{2}$                       d) none of these

- (viii) The binomial distribution(  $n, p$ ) the maximum variance is  
a)  $p = \frac{1}{2}$       b)  $p = \frac{n}{4}$       c)  $p < \frac{1}{2}$       d) none of these
- (ix)  $X \sim \text{Bin}(8, 0.5)$  then second order factorial moment is equal to  
a) **14**      b) 16      c) 18      d) none of these
- (x)  $X \sim \text{Bin}(6, 0.5), P(X \leq 3)$  is equal to  
a) 0.4      **b) 0.5**      c) 0.6      d) none of these
- (xi) The symmetric binomial distribution attains maximum  
a) mean      b) mean deviation      **c) variance**      d) none of these
- (xii) The first order central moment of  $\text{Bin} \left( n, \frac{1}{3} \right)$  is  
a) **0**      b)  $n$       c)  $np$       d) none of these
- (xiii) The third order central moment of  $\text{Bin} \left( n, \frac{1}{2} \right)$  is  
a) **0**      b)  $n$       c)  $np$       d) none of these
- (xiv) the binomial distribution (  $n, p$  ) is mesokurtic when  
a)  $p = \frac{1}{2}$       b)  $p > \frac{1}{2}$       c)  $p < \frac{1}{2}$       **d) none of these**
- (xv) Each of two persons tosses an unbiased coin  $n$  times each. The probability that both of them get same number of heads is  
a)  **$2n C_n 2^{-2n}$**       b)  $2^{-2n}$       c)  $\frac{1}{2n}$       d) none of these

**Prepared by**

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