SOLUTION OF WORKSHEET-16

SUBJECT – **STATISTICS**

Term : 1st

Topic – POISSON DISTRIBUTION **Class: XII**
Full Marks: 15 **Date:17.06.2020**

Q1. Select the correct alternative of the following questions.

(i) $X \sim Poisson(\lambda - 1)$, then rth order factorial moment $\mu_{[r]} =$
a) λ^r b) λ^{r+1} **c) λ^{r-1}** d) none of these

(ii) A random variable X denotes no of crimes committed in a year. The average of X is 3. Then the variance of X is
b) 2 **b) 3** c) 2.25 d) none of these

(iii) Poisson distribution has double modes at X= 8 and X=9, then CV is
a) 100% b) 200% **c) 33.33%** d) none of these

(iv) Binomial distribution tends to Poisson distribution when p is too
a) small b) large c) 0.5 d) none of these

(v) A Poisson distribution has double modes at X=5 and X=6, then parameter is
a) 5 b) **6** c) 5.5 d) none of these

(vi) $X \sim Poisson(1), then \beta_1$ is equal to
a) 1 b) 2 c) 4 d) none of these

(vii) $X \sim Poisson(1), P(1 \leq X \leq 2)$ is
a) $\frac{2}{e}$ b) $\frac{2}{3e}$ **c) $\frac{3}{2e}$** d) none of these

(viii) If for a random variable $X \sim Poisson(1)$, $E(X-E(X))^3$ is equal to
a) 0 **b) 1** c) 4 d) none of these

(ix)   If a random variable X defines waiting time in a bus stand, then X follows

    a) binomial   b) Poisson   c) Uniform   **d) none of these**

(x)   If X~ $Poisson(2)$, then P(X= 3) is

    a) $2e^{-2}$ **b) $\frac{4}{3}e^2$**   c) $2e^{-1}$ d) none of these

(xi)   If X~ $Poisson(1)$, then P(X= 0) is

    a) $2e^{-2}$ b) $2e^2$ **c) e^{-1}**   d) none of these

(xii)   Standard deviation of a Poisson distribution is 2. Then the value of β_2 is

    a) **0.25**   b) 0.75   c) 0.57   d) none of these

(xiii) The probability distribution which has mean is greater than its standard deviation is

    a) **binomial**   b) Poisson   c) Uniform   d) none of these

(xiv)   The probability that an individual will suffer a bad reaction from a particular injection is 0.001. Find the probability that out of 2000 individuals more than 2 individuals will suffer the bad reaction

    a) $1 - \frac{2}{e^2}$ b) $1 - \frac{3}{e^2}$ **c) $1 - \frac{5}{e^2}$**   d) none of these

(xv)   If X follows Poisson distribution satisfying $P(X=0) = P((X=1)$, then $P(X > 0)$

    a) **0.8647**   b) 0.6847   c) 0.4867   d) none of these

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