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Examination October 2020

B.Sc. T.Y (Sem-VI)

2047A 1) mathematical Statistics II -603

Time: One Hour **Max. Marks: 25**

instruction

- solve any 25 questions from Q.1 to Q.30

1 If X is a random variable, also a and b are constants, then $V(aX+b)$ = _____.

(A) $a^2V(X)$ (B) $aV(X)+b$ (C) $V(a^2X)+b$ (D)None of these

2 An expected value of a random variable is equal to it's

(A)Variance (B)Standard deviation (C)Mean (D)Covariance

3 Let X be a random variable with the following Probability Distribution, then evaluate E(X)

X	-3	6	9
$P(X=x)$	1/6	1/2	1/3

(A)11/2 (B)2/11 (C)12/2 (D)10/2

4 Evaluate the mean and variance of X.

X	0	1	2	3	4
f(x)	1/9	2/9	3/9	2/9	1/9

(A)2, 4 /3 (B)3, 4/3 (C)2, 2/2 (D)3, 2/3

5 Evaluate the Expectation of random variable X.

X	0	1	2	3
f(x)	1/6	2/6	2/6	1/6

(A)0.5 (B)1.5 (C)2.5 (D)3.5

6 Mean of a random variable X is given by _____.

(A) $E(X)$ (B) $E(X2)$ (C) $E(X2)-(E(X))^2$ (D) $(E(X))^2$

7 Variance of a constant 'a' is ___

(A)0 (B)a (C)a/2 (D)1

8 In a Binomial Distribution variance is ___ mean.

(A)Less than (B)Greater than (C)Equal (D)Not equal

9 Binomial Distribution is ___

(A)Continuous Distribution (B)Discrete Distribution (C)Irregular Distribution (D)Not a Probability distribution

10 X is a Binomially distributed with parameters n and p. What is distribution of Y=n-x?

(A) $Y=(n-x)\sim B(p,q)$ (B) $Y=(n-x)\sim B(n,q)$ (C) $Y=B(p,q)\sim(n-x)$ (D)None of these

11 The mean and variance of binomial distribution are 4 and 4/3 respectively. Evaluate n value.

(A)4 (B)5 (C)6 (D)2

12 In a Binomial Distribution, β_1 =…

(A) $\frac{\mu_3^2}{\mu_2^3}$ (B) $\frac{\mu_2^3}{\mu_2^3}$ (C) $\frac{\mu_3^2}{\mu_3^2}$ (D) $\frac{\mu_2^3}{\mu_2^3}$

13 If $x\ \ p(y)$, then mean of poisson distribution is __

(A) λ^2 (B) $1/\lambda$ (C) λ (D) $1/\sqrt{\lambda}$

14 For the poisson distribution mean is 3. Then variance is ___

(A)1/3 (B)2/3 (C)3 (D)2

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15 The Geometric distribution variance is ___ the mean

(A) Equal (B) Greater than (C) Less than (D) Not equal

16 Moment generating function of Gamma distribution is given by ___

(A) $(1-t)^{-\lambda}$ (B) $(t-1)^{-\lambda}$ (C) $(1-t)^{\lambda}$ (D) $(t-1)^{\lambda}$

17 Median of Normal distribution is _____

(A) The same (B) Not same (C) Mean<Median (D) mean>Median

18 In Rectangular distribution $\mu_2 =$ _____

(A) $\frac{1}{12}(b+a)^2$ (B) $\frac{1}{12}(b-a)^2$ (C) $\frac{1}{12}(b.a)^2$ (D) $\frac{1}{12}(\frac{b}{a})^2$

19 The mean of the exponential distribution $\mu_1 =$ _____

(A) θ (B) $1/\theta^2$ (C) θ^2 (D) $1/\theta$

20 For the Gamma distribution ,mean = _____

(A) 2λ (B) 6λ (C) λ (D) $4/\lambda$

21 If the value of any Regression coefficient is Zero, then two variables are _____

(A) Qualitative (B) Correlation (C) Dependent (D) Independent

22 The slope of the Regression line of Y on X is also called the _____

(A) Correlation coefficient of X on Y (B) Correlation coefficient of Y on X (C) Regression coefficient of X on Y (D) Regression coefficient of Y on X

23 In one Regression coefficient is greater than one, then other will be ____

(A) More than one (B) Equal to one (C) Less than one (D) Equal to minus one

24 If X and Y are independent,then COV(X,Y)= _____.

(A) 1 (B) 0 (C) -1 (D) 2

25 The lines of regression intersect at the point _____

(A) (X, Y) (B) $(\bar{X}, \bar{Y})$ (C) (0 , 0) (D) (1 , 1)

26 If X is a poisson variate such that p(X = 2) =9p(X = 4) +90p(X = 6). Evaluate mean.

(A) 4 (B) 6 (C) 5 (D) 1

27 In a poisson distribution, the second moment about the origin is 12. Then it's third moment about mean is _____

(A) 2 (B) -3 (C) 5 (D) 10

28 For two random variable X and Y , the relation E(XY) =E(X)E(Y)

(A) If X and Y are statistically independent (B) For all X and Y (C) If X and Y are identical (D) All of the aboves

29 When the variance of X=9. Regression equation: 8x-10y+66=0, 40x-18y=214.

Then evaluate the correlation coefficient between X and Y.

(A) ± 0.2 (B) ± 0.3 (C) ± 0.6 (D) 0.1

30 Evaluate the co -variance for the following data

Height(X)	1.60	1.64	1.71
Weight (Y)	53	57	60

(A) 0.126 (B) 2.02 (C) 1.02 (D) 2