



- 5. Let A be a square matrix. If  $A^T = A$  then the matrix A is
	- (A Symmetric
	- )
	- (B) Skew-symmetric
	- (C) Diagonal
	- (D  $\mathcal{L}$ Zero

6. Let  $\bigcirc$   $[1 -1 0]$  Then the matrix  $A \sim A^T$  is a

¿

- Zero matrix
- (B) Unit matrix
- (C) Symmetric matrix
- $(D)$ Skew –symmetric natrix CHE A de a square matrix. Il compositorial (A Symmetric<br>
(C) Diagonal<br>
(D) Zero<br>
(D) Zero<br>
(D)  $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 0 \\ 0 & 1 & 0 \end{bmatrix}$ .<br>
(B) Unit matrix<br>
(C) Symmetric matrix<br>
(C) Symmetric matrix<br>
(D) Skew –symmetric
	- 7. The rank of the matrix  $A=$  $[1 3 4 5 1 1]$ ¿ is CO Diagonal<br>
	D Zero<br>
	<br>
	A  $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{bmatrix}$ .<br>
	Then the matrix  $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ .<br>
	Then the matrix  $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ .<br>
	Then the matrix  $A = \begin{bmatrix} 1 & 0 &$ CO Diagonal<br>
	(b) Zero<br>
	(b) Zero<br>
	<br>
	Ltd,  $\sqrt{11 - 11}$  of The flue matrix<br>
	(B) Unit matrix<br>
	(B) Unit matrix<br>
	(C) Symmetric matrix<br>
	(C) matrix  $A = \begin{bmatrix} 13451 \frac{1}{3} \\ 2 \end{bmatrix}$  (a)  $\begin{bmatrix} d_1 & 0 & 0 \\ 0 & d_2 \end{bmatrix}$  and  $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$  and  $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$  and  $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$  and  $\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$  an
		- (A 2

 $\overline{A}$ )

- $\overline{)}$  $(B)$
- $(C)$  1
- (D ) 0
- 8. The Eigen values of a diagonal matrix  $\begin{pmatrix} 0 & d_3 \end{pmatrix}$  are
- 

- (A  $\overline{)}$
- (B)  $d_1, d_2$



9. Product of the Eigen values of the matrix (12*−*1|)(*−*20 0|) ¿

¿

is

- (A
- )

1

- $(B)$  0  $(C)$  5
- (D  $\overline{)}$  $\frac{5}{10}$
- 10. Sum of the Eigen values of the matrix *A*=  $(111)^{\rm l} \langle 12 \times_{\rm l} \rangle$ ¿ ¿ is CUSAT COMMON ADMINISTRATION WALK OF THE MANUSCRIPT OF 9. Product of the Eigen values of the matrix<br>
(A 1<br>
(B) 0<br>
(C) 5<br>
(D 10<br>
)<br>
20. Sum of the Eigen values of the matrix  $A = \begin{pmatrix} 6A & 3 \\ 1 & 3 \\ 0 & 6 \\ 0 & 4 \end{pmatrix}$ 
	- (A ) 3 (B) 6  $(C)$  5 (D  $\overline{)}$  $\begin{array}{c} 6 \\ 5 \\ 4 \end{array}$
	- 11. If  $x = r \cos \theta$ ,  $y = r \sin \theta$ , then  $\overline{\cos \theta}$  is equal to **CUSAT COMMON ADMISSION TEST 2019** 
		- (A  $\mathcal{L}$ *−r*
		- (B) *r*
		- (C) sin *θ*
		- (D  $\cos \theta$

)<br>)

12. If 
$$
f(x)
$$
 is even, then  $\int_a^b f(x)dx$   
\n(A)  $2 \int_a^b f(x)dx$   
\n(B)  $2 \int_a^b f(x)dx$   
\n(C)  $2 \int_a^b f(x)dx$   
\n(D)  $2 \int_a^b f(x)dx$   
\n(E)  $2 \int_a^b f(x)dx$ 



16. Which one of the following is not correct?

- (A  $\left(\begin{array}{cc} A & I\end{array}\right)\left(\begin{array}{c} 1 \\ 2 \end{array}\right)=\sqrt{\pi}$
- (B) *β* (*m ,n*)=*β*(*n ,m*)
- (C) *Γn*+1=(*n−*1)*Γn*

(A) 
$$
\Gamma\left(\frac{1}{2}\right) = \sqrt{\pi}
$$
  
\n(B)  $\beta(m,n) = \beta(n,m)$   
\n(C)  $\Gamma n+1=(n-1)\Gamma n$   
\n(D)  $\beta(m,n) = \frac{\Gamma n \Gamma n}{\Gamma m+n}$   
\n17. Which one of the following is not a two dim.  
\n(A) Square diagram  
\n(B) Multiple bar diagram  
\n(C) Rectangular diagram  
\n(D) Pie-chart

- 17. Which one of the following is not a two dimensional diagram?
	- (A Square diagram
	- (B) Multiple bar diagram
	- (C) Rectangular diagram
	- (D Pie-chart
	- )

- 18. The A.M of two  $\lim_{n \to \infty}$  bers is 6.5 and their G.M is 6. The two numbers are (B)  $\beta(m,n)=\beta(n,m)$ <br>
(C)  $\Gamma n+1=(n-1)\Gamma n$ <br>
(D)  $\beta(m,n)=\frac{\sum n\Gamma n}{2m+n}$ <br>
Then one of the following is not a two dimension at diagram?<br>
(A) Square diagram<br>
(B) Multiple bar diagram<br>
(C) Rectangular diagram<br>
(C) Rectangular diagram<br> (B)  $\beta(m,n) = \beta(n,m)$ <br>
(C)  $\Gamma n + 1 = (n-1) \Gamma p$ <br>
(D)  $\beta(m,n) = \frac{\Gamma n \Gamma n}{\Gamma m + n}$ <br>
Which one of the following is not a two dimensional diagram?<br>
(A) Multiple bar diagram<br>
(B) Multiple bar diagram?<br>
(D) Rectangular diagram?<br>
(D) Recta Cultures is 6.5 and their G.M is 6. The two<br>is minimum when deviations are taken from<br>is minimum when deviations are taken from<br>a series is multiplied by a constant C, the<br>ariation as compared to original value is
	- (A 9, 6
	- ) (B)  $\hat{ }$ , 5
	- $(C)$  7, 6
	- (D 4, 9
	- )
- 19. Mea. deviation is minimum when deviations are taken from
	- $(A)$ Mean
	- )
	- (B) Median
	- (C) Mode
	- (D Zero
	- $\mathcal{L}$
- 20. If each value of a series is multiplied by a constant C, the coefficient of variation as compared to original value is



- 21. If  $A \subset B$ , the probability,  $P(A/B)$  is equal to
	- (A ) Zero
	- (B) One
	- (C)
	- (D )

22. If a number is selected randomly from each  $\lambda_1$  two sets (A Zero<br>
(B) One<br>
(C)  $P(A)/P(B)$ <br>
(D)  $P(B)/P(A)$ <br>
(D)  $P(B)/P(A)$ <br>
(D)  $P(B)/P(A)$ <br>
(C)  $P(B)/P(A)$ <br>
(C)  $P(B)/P(B)$ <br>
(A  $\geq$  3.3, 4, 5, 6, 7, 8<br>
2, 3, 4, 5, 6, 7, 8, 9<br>
then the probability that t<sup>1</sup>e sum of the num

1, 2, 3, 4, 5, 6, 7, 8

2, 3, 4, 5, 6, 7, 8, 9

then the probability that the sum of the numbers is equal to 9 is B) One<br>
CUSAT COMMON COMM

- (A )
- (B)
- $(C)$

$$
\begin{array}{c}\n(D) & \frac{7}{6} \\
1 & 1\n\end{array}
$$

- 23. If  $P(A | B) = 1/4$  and  $P(B | A) = 1/3$ , then  $P(A)/P(B)$  is equal to (B) One<br>
(C)  $P(A)/P(B)$ <br>
(D)  $P(B)/P(A)$ <br>
(B)  $P(B)/P(A)$ <br>
(B)  $P(B)/P(A)$ <br>
(B)  $P(A, B, 9)$ <br>
then the probability that it is sum of the numbers is equal to 9 is<br>
(A)  $P(A, B) = |A|$  and  $P(B | A) = |A$ , then  $P(A)/P(B)$  is equal<br>
(B)  $P(A, B) = |A|$ CUSAT COMMON ADMINISTRATION
	- (A  $\lambda$
	- $7/12$ (B)
	- $4/3$ (C)
	- (D  $1/12$



25. Negative binomial distribution,  $NB(x;r,p)$  for  $r=1$  reduces to

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(A Binomial distribution

 $\mathcal{L}$ 

- (B) Poisson distribution<br>(C) Hypergeometric dist
- Hypergeometric distribution CO. Hypergeometric distribution **AND SIDE AND TEST 2019** CA Binomial distribution<br>
(B) Poisson distribution<br>
(C) Hypergeometric distribution<br>
(D) Geometric distribution<br>
(D) Commetric distribution<br>
(C) Commetric distribution<br>
(C) Commetric distribution<br>
(C) Commetric distributio
	- $(D)$ ) Geometric distribution
- 26. An approximate relation between Q.D and S.D of a normal distribution is distribution is<br>
(A 5Q.D = 4 S.D<br>
(B) 4 Q.D = 5 S.D<br>
(C) 2 Q.D = 3 S.D<br>
(D 3 Q.D = 2 S.D<br>
(D 3 Q.D = 2 S.D<br>
(C) 2 = m - 1<br>
(C)  $\chi^2 = m - 1$ <br>
(C)  $\chi^2 = n - 2$ 
	- (A  $5Q.D = 4 S.D$
	- )
	- (B)  $4 \text{ Q.D} = 5 \text{ S.D}$
	- (C)  $2 \text{ Q.D} = 3 \text{ S.D}$
	- (D 3 Q.D= 2 S.D
	- )

(A )

(B)

(C)

(D )

27. Mode of the chi-square distribution with n.d.f lies at the point (B) 4 Q.D = 5 S.D<br>
C) 2 Q.D = 3 S.D<br>
D 3 Q.D = 2 S.D<br>
Code of the chi-square distribution with n.d.f li at the point<br>
(A)  $\chi^2 = m - 1$ <br>
(C)  $\chi^2 = n - 2$ <br>
(C)  $\chi^2 = 1/(n - 2)$ <br>
(C)  $\chi^2 = 1/(n - 2)$ (B)  $40D=58D$ <br>
(C)  $20D=38D$ <br>
(D)  $30D=28D$ <br>
(B)  $x^2 = m-1$ <br>
(B)  $x^2 = m-2$ <br>
(C)  $x^2 = m-1$ <br>
(C)  $x^2 = 1/(m-2)$ <br>
(C)  $x^2 = m-2$ <br>
(C)  $x^$ 

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- 28. Stratified sampling belongs to the category of
	- $(A)$ Judgement sampling
	- )
	- (B) Subjective sampling
	- (C) Controlled sampling
	- (D Non-random sampling
	- $\lambda$

 $\lambda$ 

 $\lambda$ 

- 29. Systematic sampling means
	- (A Selection of *n* contiguous units
	- (B) Selection of *n* units situated at  $e_1^{\dagger}$  distances
	- (C) Selection of *n* largest units
- (D Selection of  $n$  middle units in a sequence (A Judgement sampling<br>
(B) Subjective sampling<br>
(C) Controlled sampling<br>
(D) Non-random sampling<br>
(A Selection of *n* contiguous units<br>
(B) Selection of *n* units situated at equal<br>
(C) Selection of *n* integest units<br>
(D
	- 30. If an estimator  $T_n$  of  $\epsilon$  pulation parameter converges in probability to  $\theta$  as *n* tends to infinity then  $\int_{0}^{T}$  is said to be CUSAT CONTROLLED SUPPLIES<br>
	CUSAT CONTROLLED SUPPLIES<br>
	THE CONTROLLED SUPPLIES<br>
	CUSAT CONTROLLED SUPPLIES<br>
	CUSAT CONTROLLED SUPPLIES<br>
	CUSAT CONTROLLED SUPPLIES<br>
	CUSAT C (C) Controlled sampling<br>
	(D) Non-random sampling<br>
	(D) Non-random sampling<br>
	(B) Systematic sampling means<br>
	(A) Selection of *n* anits situated at equal distances<br>
	(C) Selection of *n* initials units in a squarice<br>
	(C) Sele or command a parameter connection the desired in the distribution of population mean is always
		- $(A)$ **Sufficient**
		- )
		- (B) Efficient
		- (C) Consistent Unbiased
		- (D  $\mathcal{L}$
	- $31.$  Sampi medi, n as an estimator of population mean is always
		- $(A)$ Unbiased

)

- (B) Efficient
- (C) Sufficient
- (D None of the above
- $\lambda$
- 32. The maximum likelihood estimators are necessarily
	- (A Unbiased



- 33. Degree of freedom is related to
	- $(A)$ Number of observations in a set
	- )
	- (B) Hypothesis under test
	- (C) Number of independent observations in a set
	- (D None of the above
	- )
- 34. The decision criteria in SPRT depends on the functions of CUST Number of independent observations in a set<br>
D None of the above<br>
A Type I error<br>
A Type II error<br>
CUSAT COMMON CUST A Type II error<br>
CUSAT CUST None of the two types of error<br>
CUSAT CUST None of the two types of erro (A Number of observations in a set)<br>
(B) Hypothesis under test<br>
(C) Number of independent observations<br>
(D) None of the above<br>
(A Type I error<br>
(C) Type II error<br>
(C) Type I and II errors<br>
(D) None of the two types of erro
	- (A Type I error
	- )
	- (B) Type II error
	- (C) Type I and II errors
	- (D None of the two types of errors

35. Kolmogorov-Smirnov test is a

- (A One left-sided test
- )

)

)

- (B) One right-sided test
- (C) Two-sided test
- (D All of the above
- 36. If the two lines of regression are coincident the relation between the two region coefficients is (C) Number of independent deservations in a set<br>
(C) None of the above<br>
(C) None of the above<br>
(B) Type I error<br>
(B) Type I error<br>
(C) Type I eard II cruss<br>
(D) None of the two types of error<br>
(B) One rig. and itself<br>
(B) sided test<br>
and test<br>
ad test<br>
above<br>
on egre, sion are coincident the relation between<br>
on co. differents is<br>
fr<br>  $\frac{1}{2}$ <br>  $\frac{1}{2$

(A 
$$
\beta_{YX} = \beta_{XY}
$$
)  
\n(E)  $\beta_{YX} \cdot \beta_{XY} = 1$   
\n(C)  $\beta_{YX} \leq \beta_{XY}$   
\n(D  $\beta_{YX} = -\beta_{XY}$ )

37. If $\rho = 1$ , the relation between the two variables X and Y is

(A Y is proportional of X

- 
- $\binom{)}{(B)}$ (B) Y is inversely proportional to X (B) Y is inversely proportional to X<br>
(C) Y is equal to X<br>
(D) None of the above<br>
(C) ARMON ADMISSION TEST 2019<br>
(C) SPINS COMMON REVEALS AND THE COMMON REVEALS AND THE COMMON REVEALS AND THE COMMON REVEALS AND THE COMMON

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- $(C)$  Y is equal to X
- (D None of the above
- )
- 38. The consistent increase in production of cereals constitutes the component of the time series
	- (A Secular trend
	- $\lambda$
	- (B) Seasonal variation
	- (C) Irregular variation
	- (D All of the above
	- $\mathcal{L}$

)

39. Combining of two index numbers series having different base periods into one series with common base period is known as CUSAT COMMON (B) Seasonal variation<br>
(D) All of the above<br>
(D) All of the above<br>
(D) All of the above<br>
(A) Sphicing<br>
(A) Sphicing<br>
(A) Sphicing<br>
(B) Base shifting<br>
(D) Bobt (A) and (B)<br>
(D) Notifur (A) nor (B)<br>
(B) Notifur (A) nor (B) component of the time series<br>
(A Secular trend<br>
(B) Seasonal variation<br>
(C) Irregular variation<br>
(D All of the above)<br>
(A Splicing<br>
(A Splicing<br>
(C) Both (A) and (B)<br>
(D Neither (A) nor (B)

- (A Splicing
- ) (B) Base shifing
- (C) Both (A) and (B)
- (D Neither (A) nor (B)
- 40. The graph of the proportion of defectives in the lot against average sample number is
	- $(A)$ OC curve
	- $\lambda$
	- (B) A.S.N curve
	- (C) Power curve
	- (D All of the bove
	- )
- 41. In the analysis of data of RBD with *b* block and *v* treatments, the error  $\omega$  grees of freedom are e proportio, of defective and the lot against<br>numbel is<br>curve<br>wive<br>of data of RBD with b block and v treatments,<br>of freedom are<br>common and the above<br> $\bigotimes$

$$
\begin{pmatrix} A & b(v-1) \end{pmatrix}
$$

- (B) *v* (*b−*1)
- (C) (*b−*1)(*v−*1)
- (D None of the above
- $\lambda$

42. If two Latin Square are such that one can be obtained by interchanging the rows of one with columns of the other, then the Latin squares are said to be

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- (A Conjugate
- ) (B) Self conjugate B Self conjugate CASH COMMUNIST COMPANY **AND STATES OF THE RESIDENCES** 
	- (C) Orthogonal
	- $(D)$ Asymmetric

)

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- 43. The method of confounding is a device to reduce the size of
	- $(A)$ Experiments

)

- (B) Replications
- (C) Blocks
- (D All of the above
- )

)

44. If  $X \sim b(n, p)$ , the distribution of  $Y = (n - X)$  is

- (A ) *b*(*n ,*1) (B)  $b(n,x)$ (C)  $b(n, p)$ (D (A Experiments<br>
(B) Replications<br>
(C) Blocks<br>
(D All of the above<br>
(A  $b(n, p)$ , the distribution of  $\gamma = (n - X)$ <br>
(A  $b(n, 1)$ <br>
(C)  $b(n, p)$ <br>
(C)  $b(n, p)$ <br>
(D  $b(n, q)$  where  $q = 1-p$ 
	- 45. If X is Poisson variate with parameter  $\mu$ , the moment generation of Poisson variate is CD Blocks<br>
	D All of the above<br>  $\mathbf{x} \sim b(n, p)$ , the distribution of  $\mathbf{Y} = (n - \mathbf{X})$  is<br>
	A  $b(n, x)$ <br>
	(B)  $b(n, x)$ <br>
	(C)  $b(n, p)$ <br>
	(D)  $b(n, q)$  where  $q = 1 - p$ <br>
	(C)<br>
	(C)  $\mathbf{x}$  is Poisson variat: with para, etc.  $\mu$ , the mome variat: with para, vet.  $\mu$  the moment<br>tion of Poisson varia, 's is<br>the moment of  $\mu$  is a common test  $\mu$  of  $\mu$  is a comparable of  $\lambda^2$  with *n.d.f* is<br>exariance<br>variance<br>variance<br>the above
		- $(A)$ ) (B) (C) (C) Blocks<br>
		(A) All of the above<br>
		(A) All of the above<br>
		(A)  $\frac{b(n, x)}{n}$ <br>
		(A)  $\frac{b(n, x)}{n}$ <br>
		(B)  $\frac{b(n, x)}{n(n, y)}$ <br>
		(D)  $\frac{b(n, y)}{n(n, y)}$  where  $q = 1$ <br>
		(D)  $\frac{b(n, y)}{n}$ <br>
		(B)  $e^{\frac{i(n - 1)}{n}}$ <br>
		(B)  $e^{\frac{i(n - 1)}{n}}$ <br>
		(C)  $e^{\frac$
	- 46. The relation between the mean and variance of  $\chi^2$  with *n*.d.f is
		- $(A)$ Mean =  $2$  variance
		- )

 $\overline{\mathrm{C}}$ )

- (B) 2 mean = variance
- $(C)$  Mean = variance
- (D None of the above



- 47. If *X* and *Y* are distribution as  $\chi^2$  with d.f.<sup>n</sup> and <sup>n</sup> <sup>2</sup> respectively, the distribution of the variate  $X/Y$  is
- (A ) (B) (C)  $\chi^2$  with df (<sup>n<sub>1</sub>-n<sub>2</sub>)</sup> (D ) All of the above (B)  $\beta_H(\frac{n_1}{2}, \frac{n_2}{2})$ <br>
(B)  $\beta_H(\frac{n_1}{2}, \frac{n_2}{2})$ <br>
(C)  $\chi^2$  with df ( $n_1 - n_2$ )<br>
(D)  $\chi^2$  with df ( $n_1 - n_2$ )<br>
(D)  $\chi^2$  with df ( $n_1 - n_2$ )<br>
(C)  $\chi^2$  with df ( $n_1 - n_2$ )<br>
(d) discussive skewed<br>
(C) Symmetrical<br> (B)  $\beta_1(\frac{n_1}{2}, \frac{n_2}{2})$ <br>
(B)  $\beta_2(\frac{n_1}{2}, \frac{n_2}{2})$ <br>
(C)  $\chi^2$  with df (<sup>n</sup>1 - <sup>n</sup>)<br>
(D) All of the above<br>
(C) All of the above<br>
(A) All of the above<br>
(A) All of the above<br>
(C) Symmetrical<br>
(C) Symmetrical<br>
(C) Symmet 47. If X and Y are distribution as  $\sim$  with d.f.<br>
respectively, the distribution of the variate<br>
(A  $\beta_1(\frac{n_1}{2}, \frac{n_2}{2})$ <br>
(B)  $\beta_{11}(\frac{n_1}{2}, \frac{n_2}{2})$ <br>
(C)  $\chi^2$  with df ( $\frac{n_1 - n_2}{2}$ )<br>
(D All of the above<br>
48. F-di
	- F-distribution curve in respect of tails is
		- (A Negative skewed
		- ) (B) Positive skewed
		- (C) Symmetrical
		- (D None of the above
		- )
	- 49. The variable  $= -2 \log x$  where *x*<sub>1S</sub> distributed as  $U(0,1)$ follows
		- (A F-distribution
		- )

)

- $(B)$  distribution
- $\left(\begin{matrix} \heartsuit \end{matrix}\right)$  -distribution
- (D Exponential distribution
- 50. The number of possible samples of size *n*out of *N*population units without replacement is cial<br>
differences<br>  $\begin{bmatrix}\n-\frac{2}{3}\log x \\
-\frac{2}{3}\log x\n\end{bmatrix}$ <br>
auto.<br>
where  $\frac{y}{y}$  is distributed as  $U(0,1)$ <br>
retion<br>
ribution<br>
ribution<br>
placement is<br>
placement is
	- (A  $(N)$ ¿

¿

 $\lambda$ 



- 51. Probability of drawing a unit at each selection remains same in
	- $(A)$ srswor
	- )
	- (B) srswr
	- (C) both (A) and (B)
	- (D None of (A) and (B)
	- )

(A )

- 52. If  $\frac{A_1, A_2, \dots, A_n}{A_n}$  is a random sample from a population C) both (A) and (B)<br>
D None of (A) and (B)<br>
<br>
(0,  $\sigma^2$ ), a sufficient statistic for  $\sigma^2$  is<br>
(0,  $\sigma^2$ ), a sufficient statistic for  $\sigma^2$  is<br>
(C)  $\sum x_i$ <br>
(C)  $\sum x_i^2$ <br>
(C)  $\sum x_i^2$ <br>
(C)  $\sum x_i^2$ <br>
(C)  $\sum x_i^2$ <br>
(C) (A srswor<br>
(B) srswr<br>
(C) both (A) and (B)<br>
(D) None of (A) and (B)<br>
(B)  $\left(\frac{X_1, X_2, \ldots, X_n}{X_1, X_2, \ldots, X_n}\right)$  is a random sample from<br>  $N(0, \sigma^2)$ , a sufficient statistic for  $\sigma^2$  is<br>
(B)  $\sum x_i^2$ <br>
(C)  $\left(\sum x_i\right)^2$ 
	- a sufficient statistic for  $\sigma^2$  is
	- (B)
	- (C)

(D None of the abov-

- $\lambda$
- 53. Mean squared error of an estimator  $\int_0^{\infty}$  of  $\tau(\theta)$  is expressed as
- (A  $\lambda$ (B)  $(C)$ (D ) (C) both (A) and (B)<br>
(B) None of (A) and (B)<br>
(B)<br>  $\pi^{X_1, X_2, \ldots, X_n}$  is a random sample from a population<br>  $\pi^{X_1 \ldots X_n}$  is a sufficient statistic for  $\sigma^2$  is<br>  $\pi^{X_1 \ldots X_n}$  is a random sample from a population<br>
( the above<br>
from of an estimator  $f''$  of  $\tau(\theta)$  is expressed as<br>  $\pi^*(f_n)$ <br>  $\pi^*(f_n)$ <br>  $\pi^*(f_n)$ <br>  $\pi^*(f_n)$ <br>  $\pi^*(f_n)$ <br>
theorem enables us to obtain minimum variance<br>
theorem enables us to obtain minimum variance<br>
destina
- 54. Rao- Blackwell theorem enables us to obtain minimum variance unbiased estimator through
	- (A Unbiased estimators
	- )
	- (B) Complete statistics



- 55. If *t* is a consistent estimator of  $\theta$ , then
	- (A  $\overline{)}$ *t* is also a consistent estimator of
	- (B)  $t^2$  is also a consistent estimator of  $\theta$
	- (C)  $t^2$  is also a consistent estimator of  $\theta^2$
	- (D None of the above

 $\lambda$ 

)

(A )

 $(E)$ 

(D  $\mathbf{r}$ 

- 56. Formula for the confidence interval for the  $\epsilon$ <sup>tio</sup> of variances of two normal population involves (B)  $t^2$  is also a consistent estimator of  $\theta$ <br>
(C)  $t^2$  is also a consistent estimator of  $\theta^2$ <br>
(D) None of the above<br>
(D) None of the above<br>
(a) normal population involves<br>
(A)  $\chi^2$ - distribution<br>
(B) F distribut (B)  $t^2$  is also a consistent estimator of  $\theta^2$ <br>
(C)  $t^2$  is also a consistent estimator of  $\theta^2$ <br>
(D) None of the above<br>
(A)  $\chi^2$  - distribution<br>
(B) *F* distribution<br>
(B) *F* distribution<br>
(B) *F* distribution<br>
( CONTROLLARY CONTR
	- (A  $\lambda$  $\chi^2$  - distribution
	- (B) *F*distribution
	- (C) *t*-distribution
	- (D None of the above

(C)  $\max\binom{X_1, X_2, \dots, X_n}{X_1, X_2, \dots, X_n}$ 

 $\min({\binom{X_1, X_2, \dots, X_n}{n}})$ 

- 57. For the distribution  $f(x, \zeta) = \frac{1}{\rho}$  $\frac{1}{\theta}$ ; 0 ≤ *x* ≤ *θ* a sufficient estimator dis ribution  $f(x, z) = \frac{1}{\theta}$ ;  $0 \le x \le \theta$  a sufficient estimator<br>sed en a s.u.,  $\int e^{-X_1}$ ,  $X_2$ ,........ $X_n$  is<br> $\sum X_i$ ,  $\int n$ ,
	- for  $\theta$  based on a sample  $X_1, X_2, \dots, X_n$  is
- 58. A confidence interval of confidence coefficient (1*−α*)is best which has
	- (A Smallest width
	- $\mathcal{L}$

 $\mathcal{L}$ 

**LSAT COMMON** 

- (B) Vastest width
- (C) Upper and lower limits equidistant from the parameter B) Vastest width<br>C) Upper and lower limits equidistant from the parameter<br>D One-sided confidence interval<br>C<br>Cu<sub>S</sub>AT COMPONER COMMON COMPONER<br>COMPONER COMMON COMPONER COMPONER COMPONER COMPONER COMPONER COMPONER COMPONER CO ED Content wid thow it this equidistant from the parameter AND Content and the contribution content and the content of the content o

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(D One-sided confidence interval

- 59. If the variance of an estimator attains the Crammer-Rao lower bound, the estimator is bound, the estimator is<br>
(A Most efficient<br>
(C) Consistent<br>
(C) Consistent<br>
(D) Admissible<br>
(A Cype I error<br>
(A Cype I error<br>
(C) type I error<br>
(C) type I error<br>
(D) None of the above<br>
(D) None of the above
	- (A Most efficient
	- )
	- (B) Sufficient
	- (C) Consistent
	- (D Admissible
	- $\mathcal{L}$

)

- 60. Power of a test is related to
	- (A type I error
	-
	- (B) type II error
	- $(C)$  type I and II errors both
	- (D None of the above
- 61. A test based on a test statistic is classified as B) Sufficient<br>
C) Consistent<br>
D Admissible<br>
Nower of a test is related to<br>
A Type I error<br>
C) type II error<br>
C) type I and II errors both<br>
D None of the above<br>
A Randomised test<br>
(A)<br>
B) Non-racdomised test<br>
C) Se, uential (B) Sufficient<br>
(D) Consistent<br>
(D) Admissible<br>
(D) Admissible<br>
(A)  $\sqrt{2}$  pe I error<br>
(C) type I and II errors<br>
(C)  $\sqrt{2}$  pe I error<br>
(C)  $\sqrt{2}$  pe I error<br>
(C)  $\sqrt{2}$  pe I and II errors both<br>
(D) Non-racdomised tes
	- (A Randomised tes<sup>+</sup>
	- )
	- (B) Non-randomised test
	- $(C)$  Sequential test
	- (D  $\mathcal{L}$ Bayes test
- 62. Neyman-P $\varepsilon$ .  $\gamma$ n lemma provides
	- (A An un iased test
	- )
	- (B) A most powerful test
	- (C) An admissible test
	- (D Minimax test
	- )
- 63. Equality of several normal population means can be tested by Sed test<br>
Sed test<br>
side test<br>
side test<br>
side test<br>
side test<br>
side test<br>
side test<br>
common approvides<br>
and test<br>
test<br>
test<br>
critical normal population means can be tested by<br>
stest<br>
critical normal population means can
	- (A Bartlett's test
	- )
	- (B) F-test



- 64. If  $Var(X + Y) = Var(X Y)$ , then the correlation between X and Y is equal to
	- (A  $\lambda$ 1
	- (B)
	- (C)
	- (D )  $\theta$

## 65. If one regression coefficient of the two regression lines is greater than unity, the other will be (B) 1/2<br>
CO 1/4<br>
Tone regression coefficient of the two regression lines is<br>
cater than unity, the other will be<br>
(A)  $\times$  1<br>
(B) 1<br>
CO  $\times$  1<br>
D 1/2<br>
CO  $\times$  1<br>
CO (B) 1/2<br>
(C) 1/4<br>
(D) 0<br>
1 Trois regression coefficient of the two regression lines is<br>  $\frac{1}{2}$ <br>
(R) 1<br>
(A) 2<br>
(C) <1<br>
(B) 1<br>
(C) <2<br>
(C)  $\sqrt{2}$ <br>
The two at abouts r, and B the relation<br>
(a)  $\frac{u(x)}{y} = \frac{(u)(x)}{N}$  hold 64. II<br>
and Y is equal to<br>
(A 1<br>
(B)  $1/2$ <br>
(C)  $1/4$ <br>
(D 0<br>
(D 0<br>
)<br>
(B) 1/2<br>
(C)  $1/4$ <br>
(D 0<br>
(D 0<br>
)<br>
(B) C) C)<br>
(C) C) C<br>
(C) C)<br>
(D 0<br>
(C) C)<br>
(C)<br>
(C)

- (A  $>1\,$
- (B) 1

- $(C) < 1$
- (D
- )

- 66. If for two attention and B the relation  $N$  holds. the attri<sup>b</sup>utes (*α* )and (*β*)are outes A and B the relation (agf) =  $\frac{(a)(\beta)}{N}$  holds:<br>cland ( $\beta$ )<br>are<br>tent<br>y associated<br>y associated<br>wision<br>andom variable  $Z_{\text{BS}}$ <br>0<br>cland  $(Z_{\text{BS}}$ <br> $\alpha$ <br> $\alpha$ 
	- (A In <sup>1</sup>epondent
	- )
	- (B) Positively associated (C) Negatively associated
	- (D No conclusion
	- )
- 67. The c.d.f of a random variable *X* is

$$
F(x) = \begin{cases} 0 \times \leq 0 \\ \frac{x}{2\pi} \cdot 0 < x \leq 2\pi \\ 1 \times 2\pi < 0 \end{cases}
$$



- 68. The Gamma distribution is
	- $(A)$ Positively skewed and leptokurtic
	- ) (B) Negatively skewed and leptokurtic
	- (C) Positively skewed and mesokurtic
	- (D Negatively skewed and mesokurtic
	- )

69. If *X* follows exponential distribution with parameter  $θ$ , then  $Y = e^{-\theta X}$  follow (A Positively skewed and leptokurtic<br>
(B) Negatively skewed and leptokurtic<br>
(C) Positively skewed and mesokurtic<br>
(D) Negatively skewed and mesokurtic<br>
(D) Negatively skewed and mesokurtic<br>
(D) Negatively skewed and meso

- (A Gamma distribution
- ) (B) Uniform distribution
- (C) Beta distribution
- (D Cauchy distribution

70. Let  $X_1, X_2, ..., X_n$  be a random sample from  $\mathbf{p}(\mathbf{1}, \mathbf{p})$ , then the consistent estimator of  $P(y^2, p)$  is CD Positively skewed and mesokurtic<br>
D Negatively skewed and mesokurtic<br>
<br>
X follows exponential distribution with parameter  $\theta$ ,  $\uparrow$ ,  $\uparrow$ <br>  $= e^{-8X}$  follow<br>
A Gamma distribution<br>
(C) Beta distribution<br>
(C) Beta distr (C) Positively skewed and mesokuritie<br>
(C) Negatively skewed and mesokuritie<br>
(A)<br>
If X follows exponential distribution with parameter 0, then<br>  $Y = e^{-3x}$  follow<br>
(A) C) Deta distribution<br>
(C) Bead distribution<br>
(D) Cauch Custom Cust

 $(A)$ ) *X*  $(E)$ 

)

- (C)  $\overline{X}$ (1  $\overline{X}$
- (D )  $n_{\mathbf{A}}$
- 71. If a sequence of random variables is convergent in probability

then as  $\rightarrow \infty$ ,  $P(|X_n - X| \le \varepsilon)$  tends to (A  $\mathcal{L}$ 1  $(B)$  0

 $\infty$ (C) (D )

)

)

- 72. Define the events for a single roll of a die:  $A = \{1, 3, 5\}; B = \{2, 4, 6\}; C = \{5, 6\}.$  Then (D -  $\infty$ <br>
(D -  $\infty$ )<br>
2. Define the events for a single roll of a die:<br>  $A = \{1, 3, 5\}$ ;  $B = \{2, 4, 6\}$ ;  $C = \{5, 6\}$ . The<br>
(A A and B are disjoint but not independ<br>
(C) A and B are not disjoint and independent<br>
(C) A
	- (A *A* and *B* are disjoint but not independent
	- (B) *A* and *B* are not disjoint but independent
	- (C) *A* and *B* are disjoint and independent
	- (D) A and B are not disjoint and not independent

Given that  $P(A \cup B) = 5/6$ ,  $P(\bigcup_{i=1}^{n} \cap B) = 1/3$  and  $P(\hat{B}) = \frac{1}{2}$ . Then the events  $A$  and  $B \cap e$ efine the events for a single roll of a die:<br>
= {1, 3, 5};  $B = \{2, 4, 6\}$ ;  $C = \{5, 6\}$ . Then<br>
A A and B are disjoint but not independent<br>
(C) A and B are disjoint and independent<br>
C) A and B are into disjoint and indepe Define the events for a single roll of a die:<br>  $A = \{1, 3, 5\}$ ;  $B = \{2, 4, 6\}$ ;  $C = \{5, 6\}$ . Then<br>  $(A \text{ } A \text{ and } B \text{ are } \text{ disjoint but not independent})$ <br>  $(C) \rightarrow A \text{ and } B \text{ are not disjoint and independent}$ <br>  $(D \text{ } A \text{ and } B \text{ are not disjoint and not independent})$ <br>  $(D \text{ } A \text{ and } B \text{ are not disjoint and not independent})$ <br>  $(D \text{ } A \text{ and } B \text$ 

- (A Dependent
- )
- $(B)$  Independent
- (C) Mutually Exclusive
- (D ) CUSAT COMMON ADMISSION TEST 2019

74. If  $\sigma_1^2$  is the error variance of design  $D_1$  and  $\sigma_2^2$  is the error variance of design  $D_2$  utilizing the same experimental material, the efficiency of  $D_1$  over  $D_2$  is





- 77. Let  $F(x, y)$  be the joint p.d.f. of  $(X, Y)$ . If  $a, b, c, d$  are any real numbers with  $a < b$  and  $c < d$ , then  $P[a < X \le b, c < Y \le d]$  is equal to
	- $(A \quad F(b, d) + F(a, c) F(b, c) + F(a, d)$ ) (B)  $F(b, d) + F(a, c) + F(b, c) + F(a, d)$ (C)  $F(b, d) - F(a, c) - F(b, c) + F(a, d)$ (D  $\mathcal{L}$  $F(b, d) + F(a, c) - F(b, c) - F(a, d)$
- 78. A discrete r.v. *X* assumes three values  $-3$ , 0, 4 and  $P(X = 0) = \frac{1}{2}$  and  $E(X) = \frac{9}{8}$ . Then  $P(X = \frac{1}{2})$  is (A ) 1/8 numbers with  $a < b$  and  $c < d$ , then  $P[a < b]$ <br>
equal to<br>
(A  $F(b, d) + F(a, c) - F(b, c) + F(a, d)$ )<br>
(B)  $F(b, d) + F(a, c) + F(b, c) + F(a, d)$ <br>
(C)  $F(b, d) - F(a, c) - F(b, c) - F(a, d)$ <br>
(D  $F(b, d) + F(a, c) - F(b, c) - F(a, d)$ )<br>
(B)  $F(x) = 0$ <br>
(B)  $2/8$ <br>
(C)  $3/8$ <br>
(D  $1/2$ 
	- (B) 2/8 (C) 3/8 (D 1/2
	- $\mathcal{L}$
	- 79. A sample study of the people of an area revealed that total number of women was  $45\%$  and the percentage of coffee drinkers were  $\ell$  5 as a whole and the percentage of male coffee drinkers was 20. The percentage of female non-coffee drinkers<br>is is (A)  $F(0, a) + F(a, c) + F(b, c) + F(a, d)$ <br>
	(B)  $F(b, d) + F(a, c) + F(b, c) + F(a, d)$ <br>
	(C)  $F(b, d) + F(a, c) - F(b, c) - F(a, d)$ <br>
	(B)  $F(b, d) + F(a, c) - F(b, c) - F(a, d)$ <br>
	(Secretor V. X assumes three values  $-3, 0, 4$  and  $(x = 0) = \frac{1}{2}$  and  $E(x) = \frac{9}{8}$ . Then  $\frac{P$ (B)  $P(b, d) + F(a, c) + F(b, c) + F(a, d)$ <br>
	(C)  $P(b, d) - F(a, c) - F(b, c) + F(a, d)$ <br>
	(D)  $P(b, d) + F(a, c) - P(b, c) - F(a, d)$ <br>
	(D)  $P(b, d) + F(a, c) - P(b, c) - F(a, d)$ <br>
	A discrete iv. X assumes three values  $-3, 0, 4$  are<br>  $P(k = 0) = \frac{1}{2}$  and  $E(X) = 9/8$ . Then  $P(X = \$ of the people of in area revealed that total<br>means as 40% and the percentage of coffee<br>5 as a whole and the percentage of male coffee<br>. The permitiage of female non-coffee drinkers<br>and geometric mean of two observations a
		- (A  $\mathcal{L}$ 10  $(B)$  15  $(C)$   $1^3$ (D ) 20
	- 80. The arithmetic and geometric mean of two observations are 5 and 4 respectively. Then the observations are
		- (A 2, 8
		- $\mathcal{L}$ (B) 4, 1
		- (C) 6, 4
		- (D 3, 7
		- $\lambda$

81. The Harmonic mean of 1, 1/2, 1/3, ..., 1/*n* is  $(A)$ ) *n* (B) 2*n* (C) 2/(*n* + 1) (D ) *n*(*n* + 1)/2 B 2n AV COMMUNICATION **AND STATES OF THE STATES 2019** CUSAT COMMON ADMISSION TEST 2019 81. The Harmonic mean of 1, 1/2, 1/3, ...  $\sqrt[n]{ln^2}$ <br>
(A n<br>
(B) 2n<br>
(C) 2/(n + 1)<br>
(D)  $n(n+1)/2$ <br>
(C)  $\sqrt[n]{\sqrt[n]{ln^2}}$ 

- 82. If arithmetic mean and coefficient of variation of *x* are 20 and 20 respectively, what is the variance of  $y = 10 - 2x$ ?
	- (A 64
	- )
	- (B) 16 (C) 36
	- (D 84
	- $\mathcal{L}$

83. If the range of *X* is 2, what is the range of  $-3X + 5$ .



- 84. Let  $X$  be a r.y. with cumulative districulation function (c.d.f.)  $F(x)$ . Which one of the following is not the property of c.d.f.? CUSAT COMMON (B) 16<br>
(D) 36<br>
(D) 84<br>
(A)  $(2, 36)$ <br>
The range of X is 2, what is the range of  $-3x+5$ <br>
(A) (A)  $-6$ <br>
(C) 44<br>
(B)  $-6$ <br>
(C) 44<br>
(A)  $\sqrt{2}$ <br>
Let X be a r.v. with cumulative district then function  $(c, d, f)$ <br>  $F(x)$ . Which with cumulative distriction function (e.d.f.)<br>
to the followish in solution function (e.d.f.)<br>
function<br>
otorically, not decreasing<br>
the lows<br>
otorically, not decreasing<br>
are the lows<br>
at 2 levels<br>
at 3 levels<br>
at 3 level
	- (A  $\mathcal{L}$ Bounded function
	- $(B \setminus F)$  is monotor  $can$  no a decreasing
	- $(C)$  Foint function
	- (D Right continuous
	- $\mathcal{L}$

85.  $2$  factor. I experiment means an experiment with

- $\overline{A}$ 2 factors at 3 levels
- )
- (B) 3 factors at 2 levels
- (C) 3 factors at 3 levels
- (D 2 factors at 2 levels
- $\mathcal{L}$

86. Let  $X \sim \text{Binomial}(2, 1/2)$  and  $Y = X^2$ . Then  $E(Y)$  is

 $(A \ 2)$ 



- 87. To compare several treatments, when the experimental units are homogeneous, the appropriate design to be used is
	- (A Randomized Block Design
	- )

 $\mathcal{L}$ 

- (B) Latin Square Design
- $(C)$  Split Plot Design
- (D Completely Randomized Design

88. A random variable *X* has mean 50 and variance  $\widehat{A}$ . By using Chebychev's inequality, the upper bound for  $P\left[\frac{1}{2} - 50\right] \geq 15$  is (B) Latin Square Design<br>
(D) Conflit Plot Design<br>
(D) Completely Randemized Design<br>
)<br>
A random variable X has mean 50 and variance<br>
Chebyels<sup>ov</sup>'s inequality, the upper bound for  $P_{\parallel}$  - -58|> 15, is<br>
(A) 3/4<br>
(B) 2/9<br> (B) Latin Square Design<br>
C) Split Plot Design<br>
D Completely Randcmized Design<br>
andom variable X has mean 50 and variance  $\therefore$  3 by using<br>
hebyehev's inequality, the upper bound for  $P_{\parallel}/(-50) \ge 15$  is<br>
A 3/4<br>
B) 2/9<br>
C) homogeneous, the appropriate design to be (A Randomized Block Design)<br>
(B) Latin Square Design<br>
(C) Split Plot Design<br>
(D Completely Randomized Design)<br>
(B) Completely Randomized Design<br>
(R) Completely's inequality, the u

 $(A)$ ) 3/ 4 (B) 2/9  $(C)$  1/9 (D ) 4/9

89. If  $y = \sqrt{\sin x + \sqrt{\sin x + \sqrt{\sin x + \dots}}},$  then  $\frac{dy}{dx}$  is

- (A )  $\cos x$ 2 *y −*1  $(B)$   $\frac{\sin x}{2}$ 2 *y −*1  $(C)$   $\frac{\cos x}{x-1}$
- *y−*1 (D *sinx*
- ) *y−*1

90. If  $x\sqrt{1+y}+y\sqrt{1+x}=0$ , then  $\frac{dy}{dx}$  is Sinx+Vsimx....then  $\frac{dy}{dx}$  is

(A 
$$
\frac{-1}{1+x}
$$
  
\n(B)  $\frac{-1}{1+y}$   
\n(C)  $\frac{-1}{(1+x)^2}$   
\n(D  $\frac{-1}{(1+y)^2}$ 



- 91. Two contrasts  $c_i^T \hat{\beta}$  and  $c_j^T \hat{\beta}$  are said to be orthogonal if
- $(A \t c_i^T c_j = 1)$  $\lambda$ (B)  $c_i^T c_j = 0$ (C)  $c_i^2 = 1$ (D  $\lambda$  $c_j^2 = 0$ COMMENT PLATFORM COMMENT PLATFORM (A)  $c_i^T c_j = 1$ <br>
(B)  $c_i^T c_j = 0$ <br>
(C)  $c_i^2 = 1$ <br>
(D)  $c_j^2 = 0$ <br>
(D)  $c_j^2 = 0$ <br>
(C)  $c_i^2 = 1$ <br>
(D)  $c_i^2 = 0$ <br>
(C)  $K = 4, \overline{Y} = 5$ <br>
(C)  $K = 4/3, \overline{Y} = 4$ <br>
(C)  $K = 4/3, \overline{Y} = 5/4$ <br>
(D)  $\$

92. Given the two line of regression as,  $3X - 4Y + 8 = 0$  and  $4X - 3Y$  $= 1$ , the means of *X* and *Y* are

 $(A)$ )  $\overline{X}$ =4, $\overline{Y}$ =5

(B)  $\overline{X}=3, \overline{Y}=4$ 

$$
(C) \quad \overline{X} = 4/3, \overline{Y} = 5/4
$$

(D  $\lambda$  $\overline{X}$ =3/4, $\overline{Y}$ =4/5

- 93. If  $X \leq d$  *Y* are independent with common Exponential distribution with parameter  $\mathcal{O} = 1$ , then the distribution of  $(X \cdot Y)$  is CO  $c_1^2 = 1$ <br>
D  $c_2^2 = 0$ <br>
Siven the two line of regression as,  $3X - 4Y + 8 = 0$  and  $4x - 3Y$ <br>
1, the means of X and Y are<br>
A  $\overline{X} = 4$ ,  $\overline{Y} = 5$ <br>
B)  $\overline{X} = 3$ ,  $\overline{Y} = 4$ <br>
CO  $\overline{X} = 4/3$ ,  $\overline{Y} = 5/4$ <br>
D  $\overline{$ (C)  $c_s^2 = 1$ <br>
(D)  $c_s^2 = 0$ <br>
Given the two Line of regression as,  $3X - 4Y + 8 = 0$  and  $4x = 3Y$ <br>  $(A \overline{X} = 4, \overline{Y} = 5$ <br>
(A)  $\overline{X} = 3, \overline{Y} = 4$ <br>
(C)  $\overline{X} = 3/4, \overline{Y} = 5/4$ <br>
(D)  $\overline{X} = 3/4, \overline{Y} = 4/5$ <br>
(D)  $\overline{X} =$ are independent (ith common Exponential<br>
th parameter  $\omega = 1$ , then the distribution of<br>
net Caucay distribution<br>
net Caucay distribution<br>
net Caucay distribution<br>
net Caplace distribution<br>
ret Caucay distribution<br>
ret Ca
	- (A ) A Standard Cauchy distribution
	- (B)  $A_{11}$  Exponential distribution
	- $(C)$   $\wedge$  Stan lard Laplace distribution
	- $\sigma$ A *Standard* Normal distribution
- 94. The producer's risk is
	- (A Probability of rejecting a good lot
	- $\lambda$ (B) Probability of accepting a good lot
	- (C) Probability of rejecting a bad lot
	- (D Probability of accepting a bad lot
	- $\lambda$

 $\mathcal{L}$ 

95. The probability density function of *X* is  $f(x)$  = 1  $\frac{1}{4}$ , ∧ |*x*|<2.

0*otherwise*

Then  $P(2X + 3 > 5)$  is equal to

- (A 1/3
- ) (B) 1/2
- $(C)$  1/7
- (D 1/4

 $\mathcal{L}$ 

96. Let  ${X_n}$  be a sequence of random variable.  $X_n$  converges almost surely to *X* if and only if 95. The probability density function of X is  $f(x)$ <br>
Then  $P(2X+3 > 5)$  is equal to<br>
(A 1/3<br>
(C) 1/7<br>
(C) 1/4<br>
(C) 1/4<br>
(C) 2)<br>
(A  $P(\lim_{n \to \infty} X_n = X) = 0$ <br>
(B)  $P(\lim_{n \to \infty} X_n \neq X) = a$ ;  $0 < a < 1$ <br>
(C)  $P(\lim_{n \to \infty} X_n \neq X) = a$ ;  $0 <$ 

- (A  $P\left(\lim_{n\to\infty}X_n=X\right)=0$ *n→∞*
- ) (B) *P*  $\left(\lim_{n \to \infty} X_n \neq X\right) = a$ ; 0 < a < 1 *n→∞*
- (C) *P* lim *Xn≠ X*  $)=7$
- $\left\langle \begin{array}{c} 11111 \\ n \rightarrow \infty \end{array} \right.$ (D  $\mathcal{L}$  $P\left(\lim_{n\to\infty}X_n=X\right)$ *n→∞*  $\cdot$ =2
- 97. The relation between  $\lambda$ -is the convergence (a.s), convergence in probability (*p*) and convergence in  $r<sup>th</sup>$  mean (*m*) is A 1/3<br>
B) 1/2<br>
C 1/7<br>
D 1/4<br>
P 1/4<br>
P 1/4<br>
P  $\lim_{n \to \infty} X_n = X$  = 0<br>
B)  $P(\lim_{n \to \infty} X_n = X) = 0$ <br>
C P  $\left(\lim_{n \to \infty} X_n = X\right) = 0$ <br>
C P  $\left(\lim_{n \to \infty} X_n = X\right) = 2$ <br>
D P  $\left(\lim_{n \to \infty} X_n = X\right) = 2$ <br>
D P  $\left(\lim_{n \to \infty} X_n = X\right) = 2$ <br>
P  $\left(\lim_{$ (A 13<br>
(B) 1/2<br>
(C) 1/4<br>
(C) 1/4<br>
(C) 1/4<br>
(C) 1/4<br>
(B) 14<br>
(A  $P\left|\lim_{n \to \infty} X_n = X\right| = 0$ <br>
(B)  $P\left|\lim_{n \to \infty} X_n = X\right| = 0$ <br>
(B)  $P\left|\lim_{n \to \infty} X_n = X\right| = 1$ <br>
(D  $P\left|\lim_{n \to \infty} X_n = X\right| = 2$ <br>
(D  $P\left|\lim_{n \to \infty} X_n = X\right| = 2$ <br>
(D  $P\left|\lim$  $\begin{aligned}\n&= X\bigg| = 2\n\end{aligned}$ <br>
between  $\begin{aligned}\n&= X \text{ or } t \text{ and } t \text{ and } t \text{ are } t \text{ and } t \text{ is } t \text{ and } t \text{$

 $(A)$ )  $a.s \implies m$ (B)  $n = a.s \implies p$ (C)  $\leq s \implies p; m \implies p$  $\bigcap$ ) a.s  $\Rightarrow$  *p*;  $p \implies m$ 

- 98. If Type-I and Type-II errors are kept fixed, then the power of the test increases,
	- (A if there is an increase of sample size
	- ) (B) if sample size remains unchanged
	- (C) if there is a decrease of sample size
	- (D if the test is unbiased
	- $\mathcal{L}$
- 99. A valid *t*-test to assess an observed difference between two sample mean value requires 99. A valid *t*-test to assess an observed differend<br>sample mean value requires<br>(i) Both populations are independent<br>(ii) The observations to be sampled from n<br>parent population<br>(iii) The variance to be the same for both
	- (i) Both populations are independent
	- (ii) The observations to be sampled from normally distributed parent population
	- (iii) The variance to be the same for both populations
	- (A (i) and (ii)

 $\lambda$  $(B)$  (ii) and (iii)

- 
- $(C)$  (i) and (iii)
- (D ) All the three conditions

100. A sufficient condition for  $\partial \Omega$  esting to  $T_n$  to be consistent for  $\partial$ is that

(A )  $Var(T_n) \to 0$  as  $n \to \infty$ (B)  $E(T_r) - \log_2 n \to \infty$ (C) Var  $(T_n)/E(T_n) \rightarrow 0$  as  $n - \infty$ (D  $\mathcal{L}$  $E(\mathcal{T}_n) \to \theta$  and Var  $(\mathcal{T}_n) \to 0$  as  $n \to \infty$ Both populations are independent<br>
i) The observations to be sampled from normally distributed<br>
parent population<br>
(i) The variance (o be the same for both populations<br>
(A (i) and (iii)<br>
(C) (i) and (iii)<br>
C) (i) and (iii) (i) Both populations are independent<br>
(ii) The observations to be sampled from normally distributed<br>
parent population<br>
(iii) The variance (or be the same for both populations<br>
(A (i) and (iii)<br>
(B) (ii) and (iii)<br>
(C) (i

101. The arithmetic mean of three sizes 3, 4 and 2.5 weighed respectively  $\gamma$  the numbers 15, 5 and *x* is found to be 3. The value  $e^{\mathcal{L} x}$  is CUSAT COMMON ADMISSION TEST <sup>2019</sup>

## $\overline{A}$  $\lambda$ 7  $(B)$  9  $(C)$  10 (D  $\mathcal{L}$ 8

102. 
$$
\lim_{x \to 4} \frac{x^2 - x - 12}{x - 4} \text{ is}
$$
  
(A \t 0

- (B) ∞<br>(C) 3
- $(C)$ 7
- $(D)$
- )

103. The characteristics function of standard Cauchy distribution is The characteristics function of standard Cauchy distribution is<br>
(A  $e^{-t}$ <br>
(B)  $e^{t}$ <br>
(C)  $e^{-t}$ <br>
(D)  $e^{t}$ <br>
(D)  $e^{t}$ <br>
(A Treatment contrasts are c related with bloc' conn. state<br>
(A Treatment contrasts are concluded (C) 3<br>
(D 7)<br>
(D 7)<br>
(B e<sup>-t</sup><br>
(C) e<sup>-k</sup><br>
(C) e<sup>-k</sup><br>
(C) e<sup>-k</sup><br>
(C) e<sup>-k</sup><br>
(D e<sup>k</sup><br>
(D e<sup>k</sup><br>
(A Treatment contrasts are c vrelated wi<br>
(B Treatment contrasts we uncorrelated C).

- (A ) *e −t*
- (B) *e*  $\rho'$
- (C) *e −*|*t*|
- (D ) *e* |*t*|

 $\lambda$ 

 $\mathcal{L}$ 

104. A design is said to be orthogonal if

- (A Treatment contrasts are correlated with block contrasts
- (B) Treatment contrasts are uncorrelated
- $(C)$  Block contras<sup>th</sup> are correlated
- (D Treatment contrasts are uncorrelated with block contrast A  $e^{-t}$ <br>
B  $e^{t}$ <br>
C  $e^{-|t|}$ <br>
D  $e^{h}$ <br>
C  $e^{-|t|}$ <br>
D  $e^{h}$ <br>
C  $e^{-|t|}$ <br>
C Block contrasts are uncorrelated<br>
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105. Let  $X_1$  and  $X_2$  are two independent standard normal variates.



106. An unbiased coin is tossed twice. Let X and Y denote the number of times a head turns up and the number of times a tail turns up respectively. Pick out the wrong statement from the alternatives given below

number of times a head turns up and the number of times a tail  
turns up respectively. Pick out the wrong statement from the  
alternatives given below  
\n(A) 
$$
P(X > Y) > P(X < Y)
$$
  
\n(B)  $P(X + Y = 2f) = 1$   
\n(C)  $P(X = 0) = P(Y = 0)$   
\n(D)  $f^2(X^T = Y) = 1/2$   
\n(D)  $f^2(X^T = Y) = 1/2$   
\n3. (107). Let  $X_1, X_2, ..., X_n$  be a random s. The  
\ndistribution, *W* and  $\sigma^2$  3s. the arc unknown. Define  
\n
$$
S^2 = \sum_{r=1}^n (x_1, -\overline{x})^2
$$
\n(A)  $\sum_{r=1}^n (x_r - \overline{x})^2/n$   
\n(B)  $\sum_{r=1}^n (x_r - \overline{x})^2/n$   
\n(C)  $\sum_{r=1}^n (x_r - \overline{x})^2/n$   
\n(D)  $\sqrt{S^2}$ 

108. Let  $X_1, X_2, \ldots X_{11}$  be a random sample from a normal



 $(A)$  $\mathcal{L}$ Student's t-distribution with  $n^2$  degrees of freedom

- (B) Snedecor's F-distribution with (1, n) degrees of freedom
- (C) Snedecor's F-distribution with  $(n, 1)$  degrees of freedom

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- (D None of the above
- )

)

112. The number of non-negative variables in a basic feasible solution to a  $m \times n$  transportation problem is: he number of non-negative variables in a basic feasible<br>
(A mn<br>
(B) m+n<br>
(C) m+n+1<br>
D None of the above<br>
(C) m+n+1<br>
(C) m+n The number of non-negative variables in a basic feasible<br>solution to a m<sup>1970</sup> transportation problem is:<br>(a m<sub>m</sub><br>(B) m+m<sup>2</sup><br>(B) None of the above<br>(B) None of the above<br>(B) None of the above<br>(B) None of the above<br>(B) None CUSAT COMMON ADMINISTRATION WITH  $\begin{pmatrix} 1 & 0 \\ 0 & \text{None of the above} \end{pmatrix}$ <br>
112. The number of non-negative variables in a b solution to a  $m \times n$  transportation problem is<br>
(A mn<br>
(B) m+n<br>
(C) m+n+1<br>
(D) None of the above

- (A mn
- $\binom{)}{(B)}$
- $m+n$  $(C)$   $m+n+1$
- (D None of the above
- 113. Which of the following statements about confidence intervals is INCORRECT?
	- $(A)$ If we keep the sample size fixed, the confidence interval
	- $\mathcal{L}$ gets wider as we increase the confidence coefficient
	- (B) A confidence interval for a mean always contains the sample mean
- (C) If we keep the confidence coefficient fixed, the confidence interval gets narrower as we increase the sample size (B) A confidence interval for a mean always contains the<br>sample mean<br>CC if we keep the confidence coefficient fixed, the<br>confidence interval gets narrower as we increase the<br>sample size<br>D if the population standard deviati (B) A confidence interval to real mean always contains the<br>
confidence interval to reach exception interval contributed that<br>
confidence interval deta narrower as we increase the<br>
confidence interval detacances in width<br> (A If we keep the sample size fixed, the<br>
(B) dest wider as we increase the confidence<br>
(B) A confidence interval for a mean alw<br>
sample mean<br>
(C) If we keep the confidence coefficient<br>
confidence interval gets narrower as
	- (D If the population standard deviation increases, the
	- $\mathcal{L}$ confidence interval decreases in width
	- 114. If a primal LP problem has a finite solution, then the dual LP problem should have
		- $(A)$ finite solution
		- ) (B) infeasible solution
		- (C) unbounded solution
		- (D None of the above CUSAT COMMON ADMISSION TEST 2019
		- $\overline{)}$
- 115. The dual of the primal maximization LP problem having *m* constraints and *n* non-negative variables should
	- (A have *n* constraints and *m* non-negative variables
	- $\lambda$
	- (B) be a minimization LP problem
	- $(C)$  both  $(A)$  and  $(B)$
	- (D None of the above
	- $\mathcal{L}$
- 116. Consider the statements:

I. Maximum likelihood estimators are *N*ways unbiased.

II. Maximum likelihood  $\epsilon$  timate rs are always unique. (B) be a minimization LP problem<br>
C) both (A) and (B)<br>
D None of the above<br>
<br>
Sonsider the statements:<br>
Maximum likelihood estimators are slways<br>
unbiased.<br>
II. Maximum likelihood estimators are always<br>
unique.<br>
<br>
Thich o constraints and *n* non-negative variables shot<br>
(A have *n* constraints and *m* non-negativ<br>
(B) be a minimization LP problem<br>
(C) both (A) and (B)<br>
(D) None of the above<br>
(D) None of the above<br>
(D) COMMON ADMISSION COMM

Which of the statements  $g$  ven above is/are correct?

- (A I only
- ) (B) II only
- $(C)$  Both  $tan 11$
- (D Neither I nor II
- $\mathcal{L}$
- 117. Suppose X is a r ndom variable taking values  $+1$  and  $-1$  only with probability  $c/3$  and  $c/6$  respectively. Let  $Y = X^2$ . Then
- $(A)$  $\lambda$  $c_{-1}$ , nd  $P(Y=0)=1$  $(P)$  c= '  $\ell$ <sup>1</sup>d P(Y=1)=1 (C)  $=2$  and  $P(Y=1)=1$  $(L)$  $\lambda$  $c=2$  and  $P(Y=0)=1$ (B) be a minimizarition 1.P problem<br>
(D Soln (A) and (B)<br>
(D Soln (A) and (B)<br>
(D Soln dialety)<br>
(A starium likelihood estimates are slways<br>
unique.<br>
Which of the statements given above is/are correct?<br>
(A 1 only<br>
(B) II
- 118. A sampling technique in which only the first unit is selected with the help of random numbers and the rest get selected automatically according to some pre-designed pattern is known as The particular text is the matter of the state of the matter of the first unit is selected<br>  $P(Y=0)=1$ <br>  $P(Y=1)=1$ <br>  $P(Y=0)=1$ <br>
	- (A ) stratified random sampling
- (B) multi-stage sampling<br>
(C) cluster sampling<br>
(D) systematic sampling<br>
(D) systematic sampling
- $(C)$  cluster sampling
- $\overline{(\mathbf{D})}$ systematic sampling

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- 119. Normal distribution is also known as
	- $(A)$ Gaussian distribution
	- $\lambda$
	- (B) Poisson distribution
	- (C) Bernoulli's distribution
	- (D Weighted average distribution
	- $\lambda$

)

120. In Poisson probability distribution, if value of  $+$  is integer, then distribution will be (A Gaussian distribution)<br>
(B) Poisson distribution<br>
(C) Bernoulli's distribution<br>
(D) Weighted average distribution<br>
(D) Weighted average distribution<br>
(D) C) In Poisson probability distribution, if value<br>
(A bimodal<br>
(C)

 $(A)$ bimodal

- 
- (B) unimodal
- (C) positive modal
- (D ) negative modal

121. Method in which previously calculated probabilities are revised with new probabilities using other available information is based on CD Bernoulli's distribution<br>
D Weighted average distribution<br>
Poisson probability distribution, if value of  $+$  is integer than<br>
stribution will be<br>
A Simodal<br>
C positive modal<br>
D negative modal<br>
P negative modal<br>
C posit ADMISSION TEST <sup>2019</sup> Fig. 2. Example 1. The term of the same of the information is<br>
theorem<br>
n (the rem<br>
n (example)  $\mathbf{P}(X) = \mathbf{P}(X) + \mathbf{P}(Y) + \mathbf{P}(X = X)$ <br>  $\mathbf{P}(X) = \math$ 

- (A updating theorem
- )
- (B) revised theorem
- $(C, \text{Bar}$  es theorem
- (D dependency the rem
- )

 $\mathcal{L}$ 

122. If two vents X and Y are considered as partially overlapping e ents, then rule of addition can be written as

(A) 
$$
P(X \text{ or } Y) = P(X) - P(Y) + P(X \text{ and } Y)
$$

- ) (B)  $P(X \text{ or } Y) = P(X) + P(Y) * P(X - Y)$
- (C)  $P(X \text{ or } Y) = P(X) * P(Y) + P(X Y)$
- (D  $P(X \text{ or } Y) = P(X) + P(Y) - P(X \text{ and } Y)$

123. If 
$$
\lim_{n \to \infty} \left(1 + \frac{1}{n}\right)^n = e^{\frac{1}{2}}
$$
 then the value of *e* is



- 124. The polynomial equation of the least degree having -1, 1, 2 and 3 as roots is
	- )  $(x^4 - 5x^3 + 5x^2 + 5x - 5 = 0$

 $(A \quad x^4 - 5x^3 + 5x - 6 = 0$ 

- (C) *x* <sup>4</sup>*−*5 *x* 3 +5*x* 2 +5 *x−*6=0
- (D  $\overline{)}$ *x* 4 *−*5 *x* 3 *−*5 *x* 2 +5 *x−*6=0

125. A complex square matrix  $(a_{ij})$  is said to be Hermitian matrix if (for all  $i$  and  $j$ ) (B)  $x^4 - 5x^3 + 5x^2 + 5x \stackrel{=}{=6}0$ <br>
(C)  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(D)  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(D)  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(C)  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(C)  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(C)  $x^4 - 5x^3 + 5x^$ (B)  $x^4-5x^3+5x^2+5x-5=0$ <br>
(C)  $x^4-5x^3+5x^2+5x-5=0$ <br>
(D)  $x^4-5x^3+5x^2+5x-6=0$ <br>
(D)  $x^4-5x^3+5x^2+5x-6=0$ <br>
(D)  $x^3-5x^2+5x^2+5x-6=0$ <br>
(D)  $x^3=5x^3$ <br>
(C)  $a_n = a_n$ <br>
(C)  $a_n = a_n$ <br>
(D)  $a_n = a_n$ <br>
(C)  $a_n = a_n$ <br>
(C)  $a_n = a_n$ <br> 3 as roots is<br>
(A  $x^4 - 5x^3 + 5x - 6 = 0$ <br>
(B)  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(C)  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(D  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(D  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(C)  $x^4 - 5x^3 + 5x^2 + 5x - 6 = 0$ <br>
(D  $x^4 - 5x^3 + 5x$ 

- (A  $\lambda$
- (B)
- (C)
- (D )

 $^{+1}$ 

- 126. If A is order values then  $|A|$  is is
	- ) (B)  $(C)$   $\pm 1$

 $\alpha$ .

(D  $\mathcal{L}$ 0

127.  $\int_{a}^{z} \int_{c}^{z} dx dy$  is equal to PLACE COMMON ADMISSION TEST 2019



- 129. Histogram can be used only when
	- $(A)$ Class intervals are equal or unequal
	- ) (B) Class intervals are all equal
	- (C) Class intervals are unequal
	- (D Frequencies in class interval are equal
	- )

)

)

130. If  $(X, Y)$  follows the bivariate N $(0,0,1,1,\rho)$ , then the variables X  $+$  Y and X – Y are C C Class intervals are unequal<br>
D Frequencies in class interval are equal<br>
(X, Y) follows the bivariate N(0,0,1,1,*p*), then the value bles X<br>
Y and X = Y are<br>
A Correlated with  $p = \frac{1}{2}$ <br>
B) Independently distributed<br> (C) Class intervals are usegoial<br>
(A)<br>
If (X, Y) follows the bivariate N(0,0,1,1,*p*), then the vant. May X<br>
+ Y and X = Y are<br>
(A) Correlated with  $p = \frac{1}{2}$ <br>
(B) Independently distributed<br>
(D) Negatively correlated<br>
(D (A Class intervals are equal or unequal<br>
(B) Class intervals are all equal<br>
(C) Class intervals are unequal<br>
(D Frequencies in class interval are equal<br>
(D Frequencies in class interval are equal<br>
(A Correlated with  $\rho = \$ 

- (A Correlated with *ρ*= ½
- (B) Independently distributed
- (C) Negatively correlated
- (D None of the above
- 131. Bias of an estimator can  $\omega$ .
	- (A Positive
	- )
	- $(B)$  Negative
	- $(C)$  Either positive  $c \in \mathbb{R}$  negative
	- $(L)$ Always zero
	- )
- 132. Range of the variance ratio F is

(A )  $\text{to} 1$  $(B)$   $\sim$  to  $\infty$  $(C)$  0 to  $\infty$ (D  $\mathcal{L}$ 0 to 1

133. If each value *X* is divided by 2 and *Y* is multiplied by 2, then  $b'_{YX}$  by coded values is Existive or negative<br>
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- 134. If the index number is independent of the units of measurement, then it satisfies then it satisfies<br>
(A Time reversal test<br>
(C) Unit test<br>
(C) Unit test<br>
(D) All of the above<br>
(A Faulty process<br>
(B) Carelessness of operators<br>
(C) Poor quality of raw material<br>
(D) All of the above<br>
(D) All of the above
	- (A Time reversal test
	- )
	- (B) Factor reversal test
	- (C) Unit test
	- (D All of the above
	- $\mathcal{L}$
	- 135. Variation due to assignable causes in the product  $6x 1$  and the to (B) Factor reversal test<br>
	CU Unit test<br>
	D All of the above<br>
	A Faulty process<br>
	(B) Carelessness of operators<br>
	CU Poor quality of raw material<br>
	D All of the above<br>
	(B) COM COMMON CU A Estimated<br>
	(CU Gu ssed<br>
	D None or the ab
		- (A Faulty process
		- ) (B) Carelessness of operators
		- (C) Poor quality of raw material
		- (D All of the above

136. Missing observation in a CR $\angle$  is to be

- (A **Estimated**
- )

 $\mathcal{L}$ 

- (B) Deleted
- $(C)$  Guessed
- (D None of the above
- 137. If two events  $\cdot$  and *b* are such that  $A \subset B$  and  $B \subset A$ , the (B) Factor reversal test<br>
(D) All of the above<br>
(A) All of the above<br>
(A) Faulty process<br>
(A) Graduation of the above<br>
(A) Faulty process<br>
(C) Poor quality of raw material<br>
(D) All of the above<br>
(A) Hall of the above<br>
(A) The above<br>the above<br>and *b* are such that  $A \subset B$  and  $B \subset A$ , the<br> $P(A)$  and  $P(B)$  is<br> $P(B)$ <br> $P(B)$ <br>the above<br> $P(B)$ <br>merating function of the Bernoulli distribution is
	- relation  $\forall x \in P(A)$  and  $P(B)$  is

$$
\begin{pmatrix} A & P(A) \leq P(B) \\ 0 & A \end{pmatrix}
$$

$$
(B) \quad P(A) \ge P(B)
$$

- $P(A)=P(B)$
- (D  $\mathcal{L}$ None of the above
- 138. The moment generating function of the Bernoulli distribution is





- 140. If  $X \sim b(n, p_1)$  and  $X_2 \sim b(n_2, p_2)$ , the sum of the variates ( $X_1 + X_2$ ) is distributed as<br>
(A Hypergeometric distribution<br>
(B) Binomial distribution<br>
(C) Poisson distribution<br>
(D) None of the above<br>
(D) One<br>
(A) One<br>
(C) Infinite<br>
(D) Positive<br>
(D) Positive<br>
(D) Positive
	- $(X_1 + X_2)$  is distributed as
	- (A Hypergeometric distribution
	- ) (B) Binomial distribution
	- (C) Poisson distribution
	- (D None of the above
	- )

141. Let  $X \sim N(\mathcal{U}, \sigma^2)$ . Then the central moments of dd order are

- $(\Lambda)$ One
- ) (B) Zero

- (C) Infinite
- (D Positive
- 142. If we have a sample size  $n^2$  from a population of *N* units, the finite population correction is B B Binomial distribution<br>
C Poisson distribution<br>
D None of the above<br>
<br>
et  $X = N(\mathcal{U}, \sigma^2)$ . Then the central moments of the order are<br>
A One<br>
C Infinite<br>
D Positive<br>
N E P Positive<br>
<br>
A  $\frac{N^2 - 1}{N}$ <br>
B  $\frac{n-1}{N}$ <br>
B mple size  $n$  from a population of  $N$  units, the<br>
n correction is<br>
n correction is<br>  $\text{complete from a Poisson population } P(\lambda)$ , the<br>
shood estimate of  $\lambda_{12}$



- 143. For a random sample from a Poisson population  $P(\lambda)$ , the maximum likelihood estimate of *λ*is
	- (A Median
	- ) (B) Mode
	- (C) Geometric mean
- (D ) Mean
- 144. Analysis of variance utilizes
	- (A *F*-test
	- )

)

)

- (B)  $\chi^2$ -test
- (C) Z-test (D *t*-test
- 

145. If  $Var(X + Y) = Var(X) + Var(Y)$ , then the value of correlation coefficient  $r_{xy}$ is A F-test<br>
B  $\chi^2$ -test<br>
CO Z-test<br>
D (Fiest<br>
Common Common Common Common<br>
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Common Common<br>
Com EST 2019 )<br>
144. Analysis of variance utilizes<br>
(A F-test )<br>
(B)  $\chi^2$ -test (C) Z-test (C) Z-test (D) (F-test )<br>
(D) (F-test )<br>
(D) (F-test )<br>
coefficient  $r_{xy}$  is coefficient  $r_{xy}$  is

(A 0

- (B) 1 (C) (D ) 0.5
- 146. If *X* is U<sub>ni</sub> rm over  $(a, b)$  and if  $(\alpha, \beta)$  is a sub interval of  $(a, \beta)$ *b*), then  $P(\alpha < X < \beta)$  is equal to SSAT COMMON ADMINISTRATION

(A) 
$$
\frac{a-\alpha}{b-a}
$$
  
\n(B)  $\frac{\alpha-\beta}{b-a}$   
\n(C)  $\frac{\alpha-\beta}{(b-a)^2}$   
\n(D)  $\frac{\alpha+\beta}{(a-b)^2}$ 

- 147. Let *X* be a random variable (r.v.). Then  $Y = 1/X$  is also a
	- (A Random variable
	- ) (B) Random variable provided  $P(X = 0) = 0$
	- (C) Random variable provided  $P(X=0) = 1$
	- (D Not a Random variable
	- )

148. If the values of the 1<sup>st</sup> and 3<sup>rd</sup> quartiles are 20 and 30 respectively, then the value of inter quartile range i. C) Random variable provided  $P(X=0) = 1$ <br>
D Not a Random variable<br>
<br>
<br>
The values of the 1<sup>24</sup> and 3<sup>24</sup> quartiles are 20 and 30<br>
spectively, then the value of inter quartile range<br>
(A  $\overrightarrow{O}$ )<br>
(B)<br>
(B)<br>
(B)<br>
(B)<br>
(C)<br>
5<br> CO Random variable provided  $P(X=0)=1$ <br>
The values of the 1" and 3" quartiles are 20 and 30<br>
respectively, then the value of inter quartiles are 20 and 30<br>
(A) (A)  $\frac{(\lambda)}{2}$ <br>  $\frac{(\lambda)}{2}$ <br>  $\frac{(\lambda)}{2}$ <br>  $\frac{(\lambda)}{2}$ <br>  $\frac{(\lambda)}$ (A Random variable<br>
(B) Random variable provided  $P(X = 0) =$ <br>
(C) Random variable provided  $P(X = 0) =$ <br>
(D) Not a Random variable<br>
(A T0<br>
(C) then the value of inter quartile<br>
(A T0<br>
(C) 5<br>
(D) 0

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(A ) 10 (B) 25<br>(C) 5  $(C)$  5 (D 0

 $\lambda$ 

149. Let  $\{A_n\}$  be a sequence of independent events, P, if

(A) 
$$
\sum P(A_n||\infty
$$
  
\n(B)  $\sum P(A_n||\infty$   
\n(C)  $\sum P(A_n||\infty$   
\n(D)  $\sum P(A_n||\infty$   
\n(E)  $P(A_n||\infty)$   
\n150. If  $T_n$  is unbiased and consistent for  $\theta$ , then  
\n(A)  $T_n^2$  is unbiased but not consistent for  $\theta$   
\n(B)  $T_n^2$  is biased but not consistent for  $\theta$   
\n(C)  $T_n^2$  is biased and not consistent for  $\theta$   
\n $\theta$   
\n $\left(\sum_{i=1}^{n} \sum P(A_i||\infty)$   
\n $\left(\sum_{i=1}^{n} \sum P(A_i||\infty)$ 

150. If  $T_n$  is unbiased and consistent for  $\theta$ , then

(A )  $T_n^2$  is unbiased and consistent for  $\theta^2$ 

(B) *T<sup>n</sup>* <sup>2</sup> is unbiased but not consistent  $f \circ r \theta$ 

 $\overline{C}$ 2 is biased but consistent for *θ* 2

)

 $\overline{(\mathbf{D})}$  $T_n^2$  is biased and not consistent for  $\theta^2$ 

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