375 PU M Sc Statistics

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193 PU_2016_375_E
For the following 2x2 contingency table for two attributes the value of chi-square is:-

	A	A
B	20	30
B	10	40

- 20/36
- 10/38
- 100/21
- 10/18

2 of 100
120 PU_2016_375_E
If the values of the 1st and 3rd quartiles are 20 and 30 respectively, then the value of inter quartile range is:-

- 10
- 0
- 25
- 5

3 of 100
123 PU_2016_375_E
Which of the following distributions are involved in median test?

- Poisson, Beta and Power series
- Geometric, Exponential and Normal
- Lognormal, Binomial and Normal
- Hyper geometric, Normal and Chi square

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127 PU_2016_375_E
What is the module in Analyze, the item of menu bar for performing statistical parametric tests of hypothesis in SPSS?

- Compare Means
- Non - Parametric Tests
- General Linear Model
- Data Reduction

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192 PU_2016_375_E
The Yule's coefficient of association assumes:-

- only negative value
- only positive value
- only zero value
- positive, negative or zero values

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191 PU_2016_375_E
In a 2x2 contingency table it is given that (A) = 56; (b) = 48; (AB) = 35; N=100 What is the value of (aB)?

- 17
- 27
- 35
- 21

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217 PU_2016_375_E
A discrete random variable X takes the values 1, 2, 3 and 4 such that 3P(X=1) = 2P(X=2) = 5P(X=3) = P(X = 4). Then P(X = 3) is equal to:-

- 3/61
- 1/61
- 2/61
- 6/61

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166 PU_2016_375_E
Which of the following is NOT a difference between a confidence interval and a prediction interval?

- Confidence interval uses the standard error of estimate and the prediction interval does not
- Addition of "1" under the radical for the prediction interval
- Confidence interval is narrower than the prediction interval
- Prediction interval refers to a specific case

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169 PU_2016_375_E
The coefficient of determination measures the proportion of:-

- error variation relative to total variation
- explained variation relative to total variation
- variation due to the relationship among variables
- variation due to regression

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195 PU_2016_375_E
The factor reversal test is satisfied by:-

- Paasche's index
- Laspeyre's index
- Simple aggregate index
- Fisher's index

11 of 100
124 PU_2016_375_E
100% inspection is possible when:-

- Samples are easy to obtain
- Testing is destructive
- Measurement is not possible
- More time is allotted for inspection

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199 PU_2016_375_E
A hypothesis is rejected at the level of significance α = 5% by a test. Then which one of the following statements is true regarding the p-value of the test?

- p > 5%
- p < 5%
- p = 5%
- Any one of the above three can be true

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190 PU_2016_375_E
In the usual notations, two attributes S and T at 2 levels each are said to be positively associated if:-

- $(ST) < \frac{(S)(T)}{N}$
- $(ST) = (st)$
- $(ST) = \frac{(S)(T)}{N}$
- $(ST) > \frac{(S)(T)}{N}$

14 of 100
125 PU_2016_375_E
Double Sampling Inspection Plan for attributes, a second sample is taken:-

- Always

- When the number of defectives in the first sample is in between two pre-assigned numbers
- When the first sample contains only one defective item
- When the first sample does not contain any defective items

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218 PU_2016_375_E

Which one of the following in a linear contrast of the treatment effects T_1, T_2, T_3, T_4?

- $T_1 + T_2 + T_3 - T_4$
- $3T_1 + T_2 - 3T_3 + T_4$
- $-3T_1 - T_2 + T_3 + 3T_4$
- $T_1 + 3T_2 - 3T_3 + T_4$

16 of 100

213 PU_2016_375_E

The value of $lim_{x\to\infty}\left(\frac{x^2+5x+3}{x^2+x+2}\right)^x$ is :-

- e^3
- e
- e^2
- e^4

17 of 100

147 PU_2016_375_E

Let $f(x) = a_0 + a_1x^2 + a_2x^4 + \cdots + a_nx^{2n}$ be a polynomial in $x \in \mathbb{R}$ with $0 < a_0 < a_1 < \cdots < a_n$ then $f(x)$ has:-

- only one minimum
- only one maximum
- one maximum and one minimum
- neither a maximum nor a minimum

18 of 100

184 PU_2016_375_E

Population census in India are undertaken at one of the given intervals:-

- Twelve years
- Fifteen years
- Ten years
- Eight years

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168 PU_2016_375_E
In multiple regression analysis, when the independent variables are highly correlated, it is called:-

- Autocorrelation
- Multicollinearity
- Homoscedasticity
- Curvilinearity

20 of 100
111 PU_2016_375_E

The value of $\int x^{16}(1+x^{17})^4 dx$ is equal to:-

- $\frac{1}{85}\frac{(1+x^{17})^6}{5}+c$
- $\frac{1}{85}(1+x^{17})^5+c$
- $\frac{1}{85}\frac{(1+x^{16})^5}{5}+c$
- $\frac{x^{17}}{85}+c$

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162 PU_2016_375_E
Which of the following statements regarding the coefficient of correlation is true?

- It measures the strength of the relationship between two variables
- A value of 0.00 indicates two variables are not related
- It ranges from -1.0 to +1.0 inclusive
- All of the above

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164 PU_2016_375_E
A hypothesis test is conducted at the .05 level of significance to test whether or not the population correlation is zero. If the sample consists of 25 observations and the correlation coefficient is 0.60, then what is the computed value of the test statistic?

- 2.94
- 3.60
- 1.96

- 2.07

23 of 100

197 PU_2016_375_E

Algebraic sum of deviations from arithmetic mean is equal to:-

- 2
- 3
- 1
- 0

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181 PU_2016_375_E

Let ${}_nD_x$ be the number of deaths in the age group (x, x+n) and ${}_nP_x$ be the total population of the age group x to x+n, then the age specific death rate for the age group x to x+n (${}_nm_x$) is given by:-

- $\frac{{}_nP_x}{{}_nD_x} X1000$
- $\frac{{}_nP_x}{{}_nD_x} X100$
- $\frac{{}_nD_x}{{}_nP_x} X100$
- $\frac{{}_nD_x}{{}_nP_x} X1000$

25 of 100

165 PU_2016_375_E

Which of the following is true about the standard error of estimate?

- It is based on squared vertical deviations between Y and $\hat{Y}$
- It is a measure of the accuracy of the prediction
- It cannot be negative
- All of the above

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148 PU_2016_375_E

If $y = \frac{7+4x}{3+2x}$ then $\frac{d^2y}{dx^2}$ is:-

- $\frac{16}{(3+2x)^3}$

- $\frac{-8}{(3+2x)^3}$
- $\frac{8}{(3+2x)^3}$
- $\frac{-16}{(3+2x)^3}$

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121 PU_2016_375_E

In order to test the randomness among sample observations, we may use the following test as most suitable option:-

- Run Test
- Chi-Square test
- Sign Test
- Median Test

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143 PU_2016_375_E

Let $X_1, X_2, \ldots\ldots, X_n$ be a random sample from B(1, p), then a consistent estimator of p(1-p) is:-

- $\overline{X}(1-\overline{X})$
- $n.\overline{X}$
- $\overline{X}$
- $\overline{X}^2$

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122 PU_2016_375_E

The exact distribution of the number of defectives in a single sampling plan is:-

- Hyper geometric
- Poisson
- Geometric
- Binomial

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110 PU_2016_375_E

If $D=diag(d_1,d_2,d_3)$, where each of d_1,d_2,d_3 is non zero, then D^{-1} is:-

- Zero matrix
- $diag(d_1^{-1}, d_2^{-1}, d_3^{-1})$
- I_3
- D

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149 PU_2016_375_E

If $X_i \sim N(\mu_i, \sigma_i^2)$ then the distribution of $Z_i^2 = \left(\frac{X_i - \mu i}{\sigma i}\right)^2$ is:-

- Cauchy Distribution
- Gamma Distribution
- Chi-square Distribution
- Beta Distribution

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113 PU_2016_375_E

Let $a_n = \frac{2n-7}{3n+2}$ then $\lim_{n \to \infty} a_n =$

- 0
- 1
- 7/2
- 2/3

33 of 100

160 PU_2016_375_E

Arithmetic Mean (A.M.) of 'n' numbers of a series is $\overline{X}$. After calculations, it was observed that two number 'a' and 'b' are misread in the place of 'c' and 'd'. What is the corrected mean value?

- $\frac{n\overline{X} - (a+b) + (c+d)}{(n-1)}$
- $\frac{n\overline{X} - (a+b) + (c+d)}{(n+1)}$
- $\frac{\overline{X} - (a+b) + (c+d)}{n}$
- $\frac{n\overline{X} - (a+b) + (c+d)}{n}$

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183 PU_2016_375_E

The central mortality rate m_x in terms of q_x is given by the formula:-

- $q_x/(2+q_x)$
- $q_x/(2-q_x)$
- $2q_x/(2-q_x)$
- $2q_x/(2+q_x)$

35 of 100

219 PU_2016_375_E

Probability of getting two aces when two cards are drawn from the well shuffled pack of cards is:-

- 219/221
- 11/221
- 1/221
- 220/221

36 of 100

161 PU_2016_375_E

If U= aX - bY, a=8, b=9, V(X)=16, V(Y) = 25, X and Y are independent data sets, then the standard deviation of U is:-

- 25
- 77
- 16
- 12

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144 PU_2016_375_E

If T_1 is an UMVUE of $\gamma(\theta); \theta \in \Theta$ and T_2 is any other unbiased estimator of $\gamma(\theta)$ with efficiency e_θ, the correlation coefficient between T_1 & T_2, say ρ_θ, equals:-

- $\frac{1}{\sqrt{e_\theta}}$
- $\sqrt{e_\theta}$
- e_θ^2
- e_θ

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112 PU_2016_375_E

If $\frac{x+1}{(x-a)(x-3)} = \frac{2}{(x-a)} + \frac{b}{(x-3)}$, then the value of (a, b):-

- (4,1)
- (7, -1)
- (-4, 1)
- (-4, -1)

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146 PU_2016_375_E

If $\begin{vmatrix} 1+x & 1-x & 1-x \\ 1-x & 1+x & 1-x \\ 1-x & 1-x & 1+x \end{vmatrix} = 0$, then the solution set is:-

- (0, 3)
- (1, 3)
- -1, 3
- (0, 1)

40 of 100

167 PU_2016_375_E

In regression analysis, a transformation is used when:-

- the correlation is near zero
- the confidence interval is wider than a prediction interval
- the relationship between dependent and independent variables is not linear
- two variables are not independent

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142 PU_2016_375_E

Let a linear model be Y = Xβ + ε, where X is a n x (p + 1) matrix of rank (p + 1) < n.Then the Best Linear Unbiased Estimator (BLUE) of β is:-

- $\hat{\beta} = (X^T X)^{-1} X^T Y$
- $\hat{\beta} = (X^T X)^{-1} X^{-1} Y$
- $\hat{\beta} = (X^T X) X^T Y$
- $\hat{\beta} = (X^{-1} X) X^T Y$

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212 PU_2016_375_E

Product control is achieved through:-

- Control Charts
- A study of assignable causes of variation in quality
- A study of tolerance limits
- Acceptance Sampling Plans

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129 PU_2016_375_E

From which Excel ribbon, we can place header and footer for a excel document?

- View
- Insert
- Data

- Page Layout

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216 PU_2016_375_E

The fourth central moment in terms of cumulants is:-

- $\mu_4 = k_4 + 3k_2^2$
- $\mu_4 = k_4 - k_2^2$
- $\mu_4 = k_4 - 3k_2^2$
- $\mu_4 = k_4 + 3k_3^2$

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211 PU_2016_375_E

Probabilities of Accepting true H_0, and Rejecting the false H_0 are referred as:-

- Level of significance and size of the critical region
- Confidence coefficient and size of type two error
- Confidence coefficient and Power of the test
- Size of the critical region and power of the test

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141 PU_2016_375_E

If X is a random variable and for any real number k > 0, then the inequality denoted by $P\{|X|^r \geq k^r\} \leq \frac{E|X|^r}{k^r}$ is called:-

- Holder's Inequality
- Chebychev's Inequality
- Markov's Inequality
- Jensen's Inequality

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180 PU_2016_375_E

In partial confounding experiment, the confounded interaction effects:-

- can never be recovered if the total number of replications is 4
- can be recovered from all the replications
- can be recovered from those replications in which they are not confounded
- can never be recovered

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128 PU_2016_375_E

The full form of SPSS is:-

- Software Programs for Statistical Sciences
- Statistical Programs for Systems Sciences

- Statistical Packages for Social Sciences
- Software Packages for Statistical Sciences

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215 PU_2016_375_E

Which of the following functions is the solution of the given differential equation $\frac{dy}{dx} = \frac{2y^4 + x^4}{xy^3}$?

- $y = x^8 - x^4$
- $y = (x^8 - x^4)^{1/4}$
- $y = \sqrt{x^8 - x^4}$
- $y = x$

50 of 100

214 PU_2016_375_E

If the roots of the equation $x^2 - bx + c=0$ are two consecutive integers then $b^2 - 4ac$ is equal to:-

- 1
- 4
- 2
- 3

51 of 100

182 PU_2016_375_E

If P_1 and P_2 are the population at an interval of 10 years, the population just after five years will be:-

- $\sqrt{P_1 + P_2}$
- $\sqrt{(P_1 + P_2)}$
- $\frac{1}{2}\left(\frac{1}{P_1} + \frac{1}{P_2}\right)$
- $\frac{1}{2}(P_1 + P_2)$

52 of 100

126 PU_2016_375_E

For what purpose is the 'variable view' in IBM SPSS's data editor used?

- Writing syntax
- Viewing output from data analysis
- Defining characteristics of variables
- Entering data

53 of 100

198 PU_2016_375_E

If σ_1^2 and σ_2^2 are the variances of n_1 and n_2 observations respectively, then the combined variances is:-

- $n_1(\sigma_12-d_1^2)+n_2(\sigma_2^2-d_2^2)$
- $(\sigma_1^2+\sigma_2^2)/(n_1+n_2)$one
- $n_1\sigma_1^2+n_2\sigma_2^2/n_1+n_2$
- $n_1(\sigma_12+d_1^2)+n_2(\sigma_2^2+d_2^2)/n_1+n_2$

54 of 100

196 PU_2016_375_E

The mean of a random sample of 16 observations for $N(\mu,\sigma^2 = 4)$ distribution is 25 The 95% confidence interval for μ is approximately equal to:-

- (24.5,25.5)
- (21,29)
- (23,27)
- (24,26)

55 of 100

145 PU_2016_375_E

$$\int_0^{\frac{\pi}{2}} \sin^5 x \cos x dx =$$

- 1/3
- 3/2
- 1/6
- 2/3

56 of 100

140 PU_2016_375_E

The probability of choosing a random number that is divisible by 6 or 8 from among numbers 1 to 90 is:-

- 1/30
- 23/90
- 11/90
- 5/30

57 of 100

194 PU_2016_375_E

If a null hypothesis is rejected at 5% level then which one of the following is a true statement?

- The alternate hypothesis will be accepted at 95% level
- The null hypothesis will be rejected at 4% level

- The null hypothesis will be rejected at 6% level
- The null hypothesis was not selected properly

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209 PU_2016_375_E

If X~ $N(\mu,\sigma^2)$, and μ is assumed to be known, then M.L.E of σ^2 is :-

- $(1/n-1)\sum_{i=n}^{n}(x_i-\mu)$
- $(1/n)\sum_{i=1}^{n}(x_i-\mu)$
- $\frac{1}{n-1}\sum_{i=1}^{n}(x_i-\mu)^2$
- $(1/n)\sum_{i=1}^{n}(x_i-\mu)^2$

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210 PU_2016_375_E

If X is a random variable that has Uniform/Rectangular distribution with parameters α,β such α>β, then the Maximum Likelihood Estimator of β is:-

- Median $\{X_i\}$
- Sum $\{X_i\}$
- Max$\{X_i\}$
- Min $\{X_i\}$

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163 PU_2016_375_E

What can we conclude if the coefficient of determination is 0.94?

- 94% of total variation of one variable is explained by variation in the other variable
- Strength of relationship is 0.94
- Direction of relationship is positive
- All of the above are correct

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233 PU_2016_375_M

Let A be the event of getting sum on two dice is a multiple of 3, B be the event of getting sum on two dice is a multiple of 4, when two fair dice are thrown simultaneously. Then, P(AUB) and P(A∩B) are equal to:-

- 21/36,1/36
- 21/36, 20/36
- 20/36, 19/36
- 20/36, 1/36

62 of 100

248 PU_2016_375_M

The value of y_0 in the p.df. $f(x) = y_0 e^{-|x|}\, dx;\ -\infty < x < \infty$ is:-

- 1
- 1 / 2
- 1/4
- 1 / 8

63 of 100

247 PU_2016_375_M

If E(X)=2, E(Y)=3,V(X)=4,V(Y)=5, COV(X,Y)=1, Z=3X+2Y, then E(Z), V(Z)=

- 16,68
- 12,45
- 12,68
- 10,12

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242 PU_2016_375_M

Two distributions with p.d.f.'s $f_1(.)$ and $f_2(.)$ to be identical is that their characteristic functions $\phi_1(t)$ and $\phi_2(t)$ are identical is a condition of:-

- Necessary & Sufficient
- Necessary but not sufficient
- Not Necessary but sufficient
- Neither necessary nor Sufficient

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234 PU_2016_375_M

Given that P(A) =1/3, P(B) =3/4, P(A U B) = 11/12, the probability, then P(B|A) =

- 1/6
- 4/9
- 1/4
- 1/2

66 of 100

245 PU_2016_375_M

Two balls are drawn from an urn consisting of 7 white and 3 red balls, and if X be a random variable denotes the number of red balls drawn, then E(X) is:-

- 21/12
- 12/21

- 21/15
- 15/21

67 of 100

236 PU_2016_375_M

A and B stand in a queue at random with 15 other persons. What is the probability that there will be two persons between A and B?

- 17/68
- 8/68
- 7/68
- 6/68

68 of 100

237 PU_2016_375_M

Given P(AUB)=7/10, P(A∩B) =2/5 and P(A|B) =2/3, then the values of P(A), P(B), and P(B|A) are:-

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

69 of 100

231 PU_2016_375_M

A speaks truth 2 out of 3 times and B speaks truth 4 out of 5 times. Both of them agree in the assertion that a bag contains 6 different coloured balls among which one is Red coloured. Then the probability of the statement is true, is:-

- 20/41
- 30/41
- 10/41
- 40/41

70 of 100

246 PU_2016_375_M

E(X), V(X)and Cov(X,Y) based on the following bivariate probability distribution is:-

		X		
		-1	0	1
Y	-1	0	0.1	0.1
	0	0.2	0.2	0.2
	1	0	0.1	0.1

- 0.2, 0.6, 0.8
- 0.25, 0.50, 1

- 0.4, 0.5, 0.1
- 0.2, 0.56, 0

71 of 100

249 PU_2016_375_M

If the probability distribution of a discrete random variable X is as follows, then the value of constant 'a' and P(X>1) are:-

X	1	2	3	4	5	6	7
P(x)	a	2a	2a	3a	a^2	$2a^2$	$7a^2+a$

- 1/7,6/7
- 1/10, 9/10
- 1/8,7/8
- 1/9,8/9

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241 PU_2016_375_M

The P.G.F. of sum of 'n' independent discrete random variables is equal to the Product of their individual P.G.F.s, this property is also referred as:-

- Probability Convolution Property
- Probability Multiplicative Property
- Probability Additive Property
- Probability complementary Property

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243 PU_2016_375_M

Expected value of sum of numbers of points, when two dies are thrown simultaneously is:-

- 8
- 12
- 7
- 6

74 of 100

240 PU_2016_375_M

The r^{th} order cumulant K_r=

- $\frac{d^r}{dt^r}[K_x(t)]_{t=0}$
- $\frac{d^r}{dt^r}[M_x(t)]_{t=1}$

- $\frac{d^r}{dt^r}[K_X(t)]_{t=1}$
- $\frac{d^r}{dt^r}[M_X(t)]_{t=0}$

75 of 100

230 PU_2016_375_M

In a city, 60% read newspaper A, 40% read newspaper B and 50% read newspaper C, 20% read A and B, 30% read A and C, 10% read B and C. Also 5% read all papers A, B and C. What is the percentage of people who do not read any of these newspapers?

- 45%
- 5%
- 65%
- 15%

76 of 100

235 PU_2016_375_M

X and Y sit around a round table with another 10 persons. Assuming the seating arrangement is in random order, what is the chance that there are 3 persons between X and Y?

- 2/11
- 1/11
- 5/11
- 7/11

77 of 100

244 PU_2016_375_M

If X is a random variable with the following probability distribution, then $E(X^2)$ is

X=x:	-3	0	6	9
P(X=x)	1/6	0	½	1/3

- 45/93
- 93/2
- 45/4
- 90/3

78 of 100

238 PU_2016_375_M

If (20,30) is a 90% Confidence Interval (C.I.) for a parameter θ then which one of the following is a correct statement about the confidence interval?

- All other intervals will contain θ with probability less than 90%

- (20,30) is a C.I. randomly selected from a collection of intervals 90% of which contain θ
- With probability 90% θ will be in the interval (20,30)
- θ will be in the middle of the confidence interval with a longer probability (> 90%) than towards the end of C.I

79 of 100

239 PU_2016_375_M

If X and Y are two random variables then V [(aX± b) ± (cY± d)] =

- $a^2V(X) + c^2V(Y) \pm ac\ Cov(X,Y)$
- $a^2V(X) + c^2V(Y) \pm 2ac\ Cov(X,Y)$
- $a^2V(X) + c^2V(Y) + 2ac\ Cov(X,Y)$
- $a^2V(X) - c^2V(Y) + ac\ Cov(X,Y)$

80 of 100

232 PU_2016_375_M

If A point P is taken at random in a line AB of length 2a, all positions of the point being equally likely. Assume that the AP and PB formed a rectangle. Then the probability of the formed rectangular is more than $a^2/2$ is:-

- 1
- $\frac{1}{\sqrt{4}}$
- $\frac{1}{\sqrt{2}}$
- $\frac{1}{\sqrt{3}}$

81 of 100

295 PU_2016_375_D

If X be the sum of the out comes when two fair dice are thrown simultaneously, then P[| X - 6 | ≥ 1]=

- 31/36
- 6/36
- 30/36
- 5/36

82 of 100

293 PU_2016_375_D

Two dimensional random variable (X, Y) has the joint density

$$f(x,y) = \begin{cases} 8xy, 0 < x < y < 1 \\ 0, \ elsewhere \end{cases}$$

Then the conditional distribution of X given Y is:-

- $\frac{2x^2}{y^2}$
- $\frac{2x}{y^3}$
- $\frac{2x}{y}$
- $\frac{2x}{y^2}$

83 of 100

269 PU_2016_375_D

Stratified random sampling is recommended where the population is:-

- Non-homogeneous
- Non-homogeneous but can be divided into homogeneous sub-populations
- Having a linear trend
- Homogeneous

84 of 100

266 PU_2016_375_D

If the population size is 'N' and sample size is 'n', then total number of possible samples that can be obtained through SRSWR and SRSWOR respectively are:-

- $N^{n+1}; \binom{N}{n+1}$
- $N^{n+1}; \binom{N}{n}$
- $N^n; \binom{N}{n}$
- $n^N; \binom{N}{n+1}$

85 of 100

276 PU_2016_375_D

If $x^x y^y z^z = k(constant)$ then $\frac{\partial z}{\partial x}$ is given by:-

- $-\left(\frac{1+logx}{1+logz}\right)$

- $-\left(\frac{1+\log z}{1+\log x}\right)$
- $x^x y^y z$
- $x^x y^y$

86 of 100

291 PU_2016_375_D

Which of the following relation holds good for the following data? The values of X are 1,2,3,4,5,6,7,8 and 9; their respective frequencies are 2,18,15,13,12,9,7,4,1:-

- Mean = Mode
- Mode = Median
- Mode > Mean
- Mean > Mode

87 of 100

299 PU_2016_375_D

If X and Y are standardized variates, u = ax + by, v = bx + ay, $r_{xy} = \frac{1+2ab}{a^2+b^2}$ then r_{uv} =

- $\frac{a^2+b^2}{(a^2+b^2)^{1/2}-2ab}$
- $\frac{a^2+b^2}{(a^2-b^2)-2ab}$
- $\frac{a^2+b^2}{(a^2-b^2)^2-2ab}$
- $\frac{a+b}{(a^2-b^2)-2ab}$

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If the values of a variate are a, ar, ar^2, ar^3,....,....,....., ar^{n-1} each with frequency 1, then Arithmetic Mean is:-

- $ar^{(n-1)/2}$
- $\frac{a(1-r^n)}{n(1-r)}$
- $\frac{a(1-r)r^{(n-1)}}{(1-r^n)}$
- $\frac{an(1-r)r^{(n-1)}}{(1-r^n)}$

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The Probability generating function of sum of independent random variables is equal to the product of their individual probability generating functions is propagated through the property named a:-

- Additive Property
- Convolution Property
- Multiplicative Property
- Hybrid Property

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Which of the following statement is true regarding the shape of the frequency curve?

(1) Poisson and Exponential Distributions;
(2) Chi-square and Snedecor's -F Distributions;
(3) Student's -t and Normal Distributions;

- (1), (2) and (3) are Symmetric
- (1) and (2) are positively skewed; (3) are Symmetric
- (1) and (2) are symmetric; (3) are Positively skewed
- (1) are positively skewed; (2) and (3) are Symmetric

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The solution of the equation $\int_{log2}^{x} \frac{dt}{e^t-1} = log\left(\frac{3}{4}\right)$ is given by x =

- $log\left(\frac{8}{5}\right)$
- e^2
- $log\left(\frac{5}{8}\right)$
- e

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If T is an unbiased estimator of θ then:-

- The average error is zero
- T has both the errors
- the error in T will tend to 0 as the sample size tends to ∞
- T has no error

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If [x] denotes the greatest integer function then the value of $\int_{0.5}^{4.5}[x]dx + \int_{-1}^{1}|x|dx$ is:-

- 6
- 7
- 8
- 9

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The total number of possible samples of size 2 that can be drawn from a population with 5 units without replacement is:-

- 10
- 20
- 25
- 5

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The Cumulant Generating Function of χ^2- distribution is:-

- $\frac{n}{2}\log(2t).$
- $\frac{n}{2}\log(1+2t).$
- $-\frac{n}{2}\log(1-2t)$
- $\frac{n}{2}\log(1-2t).$

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In a sample survey, the true value of a unit is 16 and it is wrongly recorded as 61 and analysis carried out. This error comes under:-

- Non-sampling Error
- Arithmetic error
- Sampling Error
- Experimental Error

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If X, Y are any two random variables then the conditional Expectation E[E(X/Y)] =

- E[X/E(Y)]

- E(Y)
- E(X)
- E(X/Y)

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Let $\{X_n\}$ be a sequence of random variables. X_n converges almost surely if and only if:-

- $P(\lim_{n\to\infty} X_n = X) = 1$
- $P(\lim_{n\to\infty} X_n \neq X) = a; 0 < a < 1$
- $P(\lim_{n\to\infty} X_n = X) = 0$
- $P(\lim_{n\to\infty} X_n \neq X) = 1$

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For a Normal distribution, Quartile deviation, Mean deviation and Standard deviation are in the ratio:-

- 1 : 4/5 : 2/3
- 1/2 : 1 : 4/5
- 2/3 : 4/5 : 1
- 4/5 : 2/3 : 1

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The value of $\int_{\frac{1}{e}}^{e} |logx| dx$ is:-

- $2\left(\frac{e+1}{e}\right)$
- $2\left(\frac{e-1}{e}\right)$
- $\frac{2}{e}$
- $2\left(\frac{1-e}{e}\right)$