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DU MA MSc Statistics

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Topic:- DU_J19_MA_STATS
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1) If the number of items produced in a factory during a week is a random variable with mean 100 and variance 400, then the probability that this week's production will be at least 130 is: [Question ID = 26192] 1. 1/2 [Option ID = 44763] 2. ≤ 1/2 [Option ID = 44765] 3. 4/9 [Option ID = 44764] $4. \le 4/9$ [Option ID = 44766] **Correct Answer :-**• 1/2 [Option ID = 44763] 2) If the correlation coefficient between X and Y is +0.73, then the correlation coefficient between 3-2X and 5-3Y is: [Question ID = 26184] 1. +0.73 [Option ID = 44732] 2. 1 [Option ID = 44734] 3. $(0.73)^2$ [Option ID = 44733] 4. -0.73 [Option ID = 44731] **Correct Answer :-**• -0.73 [Option ID = 44731] 3) If Karl Pearson's coefficient of skewness of a distribution is 0.32, its mean is 29.6 and standard deviation is 6.5, then mode of the distribution is: [Question ID = 26190] 1. 27.51 [Option ID = 44756] 2. 27.00 [Option ID = 44758] 3. 27.5 [Option ID = 44757] 4. 27.52 [Option ID = 44755] **Correct Answer :-**• 27.52 [Option ID = 44755] 4) In any discrete series (when all the values are different), the relationship between standard deviation (SD) and mean deviation (MD) is [Question ID = 26202] 1. SD = MD [Option ID = 44803] 2. SD < MD [Option ID = 44804] 3. SD \geq MD [Option ID = 44805] 4. **SD ≮ MD** [Option ID = 44806] **Correct Answer :-**• SD = MD [Option ID = 44803] 5) ANOVA procedure is used for data that was obtained from four groups each comprised of five observations. The degrees of freedom for critical value of F are: [Question ID = 26215]

2. 3 and 19 [Option ID = 44857] 4. 3 and 20 [Option ID = 44856]	www.FirstRanker.com	www.FirstRanker.co
Correct Answer :- • 3 and 19 [Option ID = 44855]		
 6) How many two factor interaction 1. 2 [Option ID = 44847] 2. 1 [Option ID = 44850] 3. 3 [Option ID = 44848] 4. 4 [Option ID = 44849] 	ons are there in a 2×2×2 Factorial des	ign? [Question ID = 26213]
Correct Answer :- • 2 [Option ID = 44847]		
 7) The Central Limit Theorem is implementation. 1. For any population, it says the sample size [Option ID = 44772] 2. For any sized sample, it says the same 44774] 3. For a large n, it says the population if 4. For a large n, it says the sampling distribution to the population [Option ID = 44773] 	portant in Statistics because: [Quest ling distribution of the sample mean is app npling distribution of the sample mean is ap s approximately normal [Option ID = 4477 stribution of the sample mean is approxima	ion ID = 26194] roximately normal, regardless of th oproximately normal. [Option ID = [1] ately normal, regardless of the shap
 Correct Answer :- For a large n, it says the population 8) Under proportional allocation in 	is approximately normal [Option ID = 44 stratified sampling, the size of the sampling, the size of the sampling, the size of the sampling stratified sampling, the size of the sampling stratified stratified sampling stratified stratified sampling stratified stratifi	771] ample from each stratum depe
 Correct Answer :- For a large n, it says the population 8) Under proportional allocation in on: [Ouestion ID = 26212] 	is approximately normal [Option ID = 44 • stratified sampling, the size of the sa	771] ample from each stratum deper
 Correct Answer :- For a large n, it says the population 8) Under proportional allocation in on: [Question ID = 26212] 1. Size of the stratum [Option ID = 44845] 2. Population size [Option ID = 44845] 3. Total sample size [Option ID = 44846] 4. All of the above [Option ID = 44846] 	is approximately normal [Option ID = 44 stratified sampling, the size of the s 444] 3]	771] ample from each stratum deper
 Correct Answer :- For a large n, it says the population 8) Under proportional allocation in on: [Question ID = 26212] 1. Size of the stratum [Option ID = 44845] 2. Population size [Option ID = 44845] 3. Total sample size [Option ID = 44846] Correct Answer :- Total sample size [Option ID = 44846] 	is approximately normal [Option ID = 44 stratified sampling, the size of the s 444] 3]	771]
 Correct Answer :- For a large n, it says the population 8) Under proportional allocation in on: [Question ID = 26212] 1. Size of the stratum [Option ID = 4484 2. Population size [Option ID = 44845] 3. Total sample size [Option ID = 44846] Correct Answer :- Total sample size [Option ID = 44846] 9) The blood pressure (B.P.) of a g B.P. was measured again. To determ [Question ID = 26195] 	is approximately normal [Option ID = 44 stratified sampling, the size of the sa 444] 3] 43] troup of patients was determined. After mine the significance of the medicine	771] ample from each stratum deper er administering a medicine, th , the test to be applied is:
Correct Answer :- • For a large n, it says the population 8) Under proportional allocation in on: [Question ID = 26212] 1. Size of the stratum [Option ID = 4484 2. Population size [Option ID = 44845] 3. Total sample size [Option ID = 44846] Correct Answer :- • Total sample size [Option ID = 44846] 9) The blood pressure (B.P.) of a g B.P. was measured again. To deter [Question ID = 26195] 1. Z - test [Option ID = 44775] 2. Paired t- test [Option ID = 44777] 4. F-test [Option ID = 44778]	is approximately normal [Option ID = 44 a stratified sampling, the size of the sa 444] 3] 43] 43] aroup of patients was determined. After mine the significance of the medicine	ample from each stratum deper er administering a medicine, th , the test to be applied is:
Correct Answer :- • For a large n, it says the population 8) Under proportional allocation in on: [Question ID = 26212] 1. Size of the stratum [Option ID = 44845] 2. Population size [Option ID = 44845] 3. Total sample size [Option ID = 44846] Correct Answer :- • Total sample size [Option ID = 44846] 9) The blood pressure (B.P.) of a g B.P. was measured again. To detern [Question ID = 26195] 1. Z - test [Option ID = 44775] 2. Paired t- test [Option ID = 44776] 3. χ^2 - test [Option ID = 44777] 4. F-test [Option ID = 44775] Correct Answer :- • Z - test [Option ID = 44775]	is approximately normal [Option ID = 44 stratified sampling, the size of the sa 444] 3] 13] 13] 13] 143] 143] 143] 143]	ample from each stratum depen er administering a medicine, th , the test to be applied is:

4. Less than 768 [Option ID = 44784]	www.FirstRanker.com	www.FirstRanker.co
Correct Answer :-		
• Greater than 768 [Option ID = 44783]		
11) If N = 60, (A) = 45, (B) = 35 and (26196]	(AB) = 25 then the two attributes	A and B are [Question ID =
 Independent [Option ID = 44779] Positively associated [Option ID = 44781 Negatively associated [Option ID = 44784] Nothing can be said [Option ID = 44782]] 0]]	
Correct Answer :-		
• Independent [Option ID = 44779]		
 12) For a 2⁴ factorial experiment the p [Question ID = 26216] 1. AC, BD, ABCD [Option ID = 44859] 2. ABC, BCD, AD [Option ID = 44862] 3. AB, CD, ABCD [Option ID = 44861] 4. AD, BC, ABCD [Option ID = 44860] 	principal block is ((1), ab, cd, abcd). The confounded effects are:
Correct Answer :-		
• AC, BD, ABCD [Option ID = 44859]		
13) Cayley Hamilton Theorem states [Question ID = 26167]	
 Every square matrix is invertible. [Option Every square matrix satisfies its characte Every square matrix satisfies a given poly Every square matrix can be reduced to N 	ID = 44663] ristic equation [Option ID = 44665] ynomial equation. [Option ID = 44664] lormal form. [Option ID = 44666]	
Correct Answer :-		
• Every square matrix is invertible. [Optio	n ID = 44663]	
14) Let X and Y be two variables and r the following is always true? [Question	r(X,Y) be the correlation coefficien n ID = 26201]	t between them , then which of
1. If X and Y are linearly related then $r(X,Y)$) = 0 [Option ID = 44801]	
2. If X and Y are independent then $r(X,Y) =$ 3. If $r(X,Y) = 0$, then X and Y are independent	= 0 [Option ID = 44800] ent [Option ID = 44799]	
4. None of the above [Option ID = 44802]	an sta	
Correct Answer :-		
• If $r(X,Y) = 0$, then X and Y are independent	dent [Option ID = 44799]	
15) The relationship between Pearson	i's β and γ coefficients is [Question	n ID = 26198]
$\gamma_2 = \beta_2 - 3$, $\nu_1 = + 1/2$	β_1	
$\frac{1}{1} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2}$	[Option ID = 44787]	
$\gamma_2 = p_2 + 3, \ \gamma_1 = \sqrt{\beta_2}$	1 [Option ID = 44790]	
$_{3.} \gamma_2 = \beta_2 + 3, \ \gamma_1 = +\sqrt{2}$	β_1 [Option ID = 44788]	

•	$\gamma_2 = \beta_2 - 3$, $\gamma_1 = +\sqrt{\beta_1}$ [Option ID = 44787]
1(e:	5) The difference between the expected value of a statistic and the value of the parameter is being stimated is called [Question ID = 26211]
1. 2. 3. 4.	Non sampling error [Option ID = 44841] Bias [Option ID = 44842] Sampling error [Option ID = 44839] Standard error [Option ID = 44840]
C(orrect Answer :- Sampling error [Option ID = 44839]
17	7) A beta variable of the first kind with parameters (1,1) is: [Question ID = 26180]
1. 2. 3. 4.	uniform variable over (0,1) [Option ID = 44718] beta variable of the second kind [Option ID = 44716] exponential variable with mean 1 [Option ID = 44715] N(0,1) [Option ID = 44717]
Сс •	orrect Answer :- exponential variable with mean 1 [Option ID = 44715]
18 1. 2. 3. 4.	3) Measure of skewness of the Poisson distribution P(λ) is [Question ID = 26199] $1/\lambda^2$ [Option ID = 44791] None of the above [Option ID = 44794] λ [Option ID = 44792] $1/\lambda$ [Option ID = 44793]
C	prrect Answer :-
•	1/λ² [Option ID = 44/91]
19	P(X = x, Y = y) = $\frac{1}{3x}$, y = 1, 2,, x; x = 1, 2, 3. Then the value of the conditional expectation $E(Y X = 3)$ is: Question ID = 26188]
1! [(1. 2. 3. 4.	P ($X = x, Y = y$) = $\frac{1}{3x}$, $y = 1, 2,, x$; $x = 1, 2, 3$. Then the value of the conditional expectation $E(Y X = 3)$ is: Question ID = 26188] 2 [Option ID = 44749] 2.5 [Option ID = 44749] 1 [Option ID = 44747] 1.5 [Option ID = 44748]



[Option ID = 44818] www.FirstRanker.com

2.

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$$\int_{1}^{1} \frac{\sum_{i=1}^{n} \log x_{i}}{\sum_{i=1}^{n} \log x_{i}} \int_{(0pton 1D = 44816)}^{(0pton 1D = 44816)} -1 + \left(\frac{n}{\sum_{i=1}^{n} \log x_{i}}\right)_{(0pton 1D = 44817)}^{(0pton 1D = 44817)}$$
Correct Answer :-

$$\frac{n}{\sum_{i=1}^{n} \log x_{i}} \int_{(0pton 1D = 44815)}^{2} \int_{(0pton 1D = 44815)}^{2} \int_{(0pton 1D = 24815)}^{2} \int_{1}^{2} De general solution of exact differential equation $(x^{2} - ay)dx + (y^{2} - ax)dy = 0$ is
[Question 1D = 25172]
1. None of these (Option 1D = 44685)
 $a^{2} - 6axy + y^{3} = c$ (Option 1D = 44683)
 $a^{2} - 6axy + y^{3} = c$ (Option 1D = 44683)
 $a^{2} - 6axy + y^{3} = c$ (Option 1D = 44683)
 $a^{2} - 6axy + y^{3} = c$ (Option 1D = 44683)
 $a^{2} - 6axy + y^{3} = c$ (Option 1D = 44683)
24) The tangent to the curve $x(x^{2} + y^{2}) = a(x^{2} - y^{2})$ at origin are
[Question 1D = 25175]
 $1 \cdot y = 0, y = a$ [Option 1D = 44683]
 $2 \cdot y = 0, x = a$ [Option 1D = 44695]
Correct Answer:
 $x = 0, x = a$ [Option 1D = 44695]
Correct Answer:
 $x = 0, x = a$ [Option 1D = 44695]
 2^{5} If $z = sin^{-1}\frac{x}{z} + tan^{-1}\frac{x}{y}$ then $x\frac{a}{ax} + y\frac{a}{ay}$ equals
[Question 1D = 25170]
 $1 \cdot (Option 1D = 44675)$
 $2 \cdot \left(\frac{x^{2}-x^{2}}{(x^{2}-x^{2})}\right]$ (Option 1D = 44675]
 $\frac{x^{2}-x^{2}}{(x^{2}+x^{2})}$ (Option 1D = 44675]$$

Correct Answer :-

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27)
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If the mean deviation of x from its mean is 5, then the mean deviation of y = 2x + 3 from its mean is:

[Question ID = 26191]

1. 13 [Option ID = 44760] 2. 5 [Option ID = 44762] 3. 10 [Option ID = 44761] 4. 17 [Option ID = 44759]

Correct Answer :-• 17 [Option ID = 44759]

28)

Let X_1 and X_2 be independent random variables with respective moment generating functions as $M_1(t) = \left(\frac{3}{4} + \frac{1}{4}e^t\right)^3$ and $M_2(t) = e^{2(e^t - 1)}, -\infty < t < \infty$. Then the value of $P(X_1 + X_2 = 0)$ is: [Question ID = 26181]

$$\frac{27}{64}e^{-2}$$
 [Option ID = 4472



30)

Let \bar{x} be the sample mean of observations drawn from a distribution with probability density function as

$$f(x) = \begin{cases} \frac{1}{6\theta} & 0 < x < 6\theta \\ 0 & otherwise \end{cases}$$

Which one of the following is a method of moment estimator of θ ?

[Question ID = 26206]





33)

rstRanker.com If the joint p.d.f. of the randowww.firstRenker.com is givenwww.FirstRanker.com $f(x, y) = \begin{cases} x + y, & 0 \le x \le 1, 0 \le y \le 1\\ 0, & \text{otherwise,} \end{cases}$ then the conditional p.d.f. of X given Y = y is: [Question ID = 26179] (x+y) $\overline{(1+2y)}$ [Option ID = 44714] (x+y)(1+2x)[Option ID = 44712] 2(x+y)(1+2y)[Option ID = 44713] 2(x+y)[Option ID = 44711] **Correct Answer :-**2(x+y)[Option ID = 4471134) If y = sinpx + cospx then y_n (the nth derivative of y w.r.t. x) equals [Question ID = 26168] 1. 0 [Option ID = 44668] 2. 1 [Option ID = 44667] $p^{n}[1 + (-1)^{n}sin2px]^{1/2}$ 3. [Option ID = 44670] $p^{n}[1 + sin2px]^{1/2}$ [Option ID = 44669] **Correct Answer :-**• 1 [Option ID = 44667]

35)

Let $X_1, X_2,...$ be a sequence of independent and identically distributed Chisquare random variables, each having 4 degrees of freedom. Define

$$S_n = \sum_{i=1}^n X_i^2$$
, $n = 1, 2, \dots$. If $\frac{S_n}{n} \xrightarrow{p} \mu$, as $n \to \infty$, then μ is equal to:

[Question ID = 26182]



36)

If ρ is the correlation coefficient between X and Y, then the minimum value of Var(Y-aX), over all the values of a, is given by:

[Question ID = 26183]

1. $(1 - \rho^2) Var(Y)$ [Option ID = 44730] 2. $\frac{\rho^2 Var(X)}{Var(Y)}$ [Option ID = 44728] 3. $\frac{\rho^2 Var(Y)}{Var(X)}$ [Option ID = 44727] $\rho^2 Var(Y)$ 4. [Option ID = 44729]

Correct Answer :-

$$\frac{\rho^2 Var(Y)}{Var(X)}$$
[Option ID = 44727]

37)

There are 3 persons A, B, C. The probability that A alone will survive for 10 years is $\frac{4}{105}$ and the probability that C alone will die within 10 years is $\frac{2}{21}$. Assuming that the events of the survival of A, B and C can be regarded as independent, the probability of surviving 10 years for person B is:

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[Question ID = 26185]

1. \frac{2}{5} [Option ID = 44736]

2. \frac{3}{5} [Option ID = 44738]

3. \frac{5}{7} [Option ID = 44737]
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 $\frac{r}{n}(1-\frac{r}{n})$ [Option ID = 44811]

rstRanker.com nker's choic www.FirstRanker.com www.FirstRanker.com n 2. [Option ID = 44814] n [Option ID = 44813] 3. $\frac{r}{n}(1+\frac{r}{n})$ [Option ID = 44812] **Correct Answer :-** $\frac{r}{n}\left(1-\frac{r}{n}\right)$ [Option ID = 44811] 41) If x_1, x_2, \dots, x_n is a random sample from a normal population N(μ , 1) then an unbiased estimator of $1 + \mu^2$ is [Ouestion ID = 26203] $\frac{1}{n}\sum_{i=1}^{n}x_{i}^{2}$ [Option ID = 44807] $n^{-1} \sum_{i=1}^{n} (x_i^2 - \bar{x}^2)$ [Option ID = 44809] $\sum_{i=1}^{n} x_i^2$ [Option ID = 44810] $\frac{1}{n-1}\sum_{i=1}^{n}(x_i^2-\bar{x}^2)$ [Option ID = 44808] **Correct Answer :-** $\frac{1}{n}\sum_{i=1}^{n}x_{i}^{2}$ ⁴²⁾ Given that the roots of the equation $x^3 - px^2 + qx - r = 0$ are in G.P. (Geometric progression), then [Question ID = 26174] 1. $p^2 q^2 = r$ [Option ID = 44694] 2. pqr = 1 [Option ID = 44691] 3. $p^3 = rq^3$ [Option ID = 44692] 4. $rp^3 = q^3$ [Option ID = 44693] **Correct Answer :-** pqr = 1 [Option ID = 44691] 43) For a 2⁵ factorial experiment consisting of 2³ blocks of size 2² each, the number of independent effect(s) confounded with blocks is/are $IO_{\text{uestion ID}} = 26214^{\circ}$





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