



Statistics	(A)	L.K.No. 1082	Paper Code No. 8181
Paper II	(Objective Type)	1st - A - Exam 2023	Session (2019 - 21) to (2021 - 23)
Time :	20 Minutes	Inter (Part - II)	
Marks :	17		

Noor Coaching Centre
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Note : Four possible choices A, B, C, D to each question are given. Which choice is correct fill that circle in front of that Question No. Use Marker or Pen to fill the circles. Cutting or filling two or more circles will result in Zero Mark in that Question.

- Q.No.1
- (1) In a Normal Distribution $\sigma^2 = 5$, then $\mu_4 =$:
(A) 25 (B) 75 (C) 15 (D) $\sqrt{5}$
 - (2) If $X \sim N(50, 100)$, then $\sigma =$: (A) 100 (B) 10 (C) 50 (D) $\sqrt{50}$
 - (3) In a Normal Distribution $\mu = 20$ and $\sigma^2 = 49$ then Mode is :
(A) 20 (B) 49 (C) 7 (D) $\sqrt{20}$
 - (4) The collection of Information from a part of Population is called :
(A) Sample Survey (B) Census (C) Complete Enumeration (D) Sample
 - (5) A value calculated from Sample is called :
(A) Statistic (B) Parameter (C) Sampling Error (D) Bias
 - (6) If 'T' be the Sample Statistic and 'θ' be the Parameter then Bias = :
(A) $T - \theta$ (B) $\theta - T$ (C) $E(T) - \theta$ (D) $\theta - E(T)$
 - (7) If $E(T) = \theta$, then Estimator T is :
(A) Unbiased (B) Biased (C) Positively Unbiased (D) Negatively Unbiased
 - (8) The Level of Confidence is denoted by : (A) $1 - \beta$ (B) $1 - \alpha$ (C) α (D) β
 - (9) Which of them can not be Null Hypothesis :
(A) $\theta \geq \theta_0$ (B) $\theta \leq \theta_0$ (C) $\theta = \theta_0$ (D) $\theta \neq \theta_0$
 - (10) The value of Correlation Coefficient is always in the Range :
(A) 0 to +1 (B) -1 to +1 (C) -1 to 0 (D) -2 to +2
 - (11) In Regression Analysis b_{yx} , b_{xy} and S_{xy} has always :
(A) Same Signs (B) Opposite Signs (C) No Signs (D) None of these
 - (12) If $r_{xy} = -0.84$, if $U = -2x$ and $V = 4y$ then $r_{uv} =$:
(A) -0.84 (B) 0.84 (C) -0.48 (D) 0.48
 - (13) Yule's Coefficient of Association lies between :
(A) 0 to +1 (B) -1 to +1 (C) -1 to 0 (D) -2 to +2
 - (14) The value of Rank Correlation Coefficient lies between :
(A) 0 to +1 (B) -1 to 0 (C) -1 to +1 (D) 0 to ∞
 - (15) Irregular Movements are :
(A) Signal (B) Noise (C) Systematic Component (D) Secular Trend
 - (16) The Systematic Component of Variation in Time Series is called :
(A) Signal (B) Noise (C) Erratic (D) Random
 - (17) The Computer Programs in general are called :
(A) Software (B) Hardware (C) ROM (D) RAM



Roll No.	1082 - 6000	Inter (Part - II)	Session (2019 - 21) to (2021 - 23)
Statistics (Subjective)	1st - A - Exam 2023		Time 2 : 40 Hours Marks : 68

Note: It is compulsory to attempt any (8-8) Parts each from Q.No.2 and Q.No.3 while attempt any (6) Parts from Q.No.4. Attempt any (3) Questions from (Part - II). Write same Question No. and its Part No. as given in the Question Paper.

Part - I

22 x 2 = 44

Q.No.2	(i)	In a Normal Distribution the Mean and Standard Deviation are 25 and 5 respectively. Find : (a) The Mean Deviation (b) The Quartile Deviation	
	(ii)	The Standard Deviation of a Normal Distribution is 4, find its Third and Fourth Moment about Mean.	
	(iii)	Define Standard Normal Variable.	(iv) Write any two properties of Normal Distribution.
	(v)	What is the role of the Mean μ in the Normal Curve?	(vi) Define an Unbiased Estimator.
	(vii)	What is Interval Estimation?	(viii) Define Composite Hypothesis.
	(ix)	What is One Tailed Test?	(x) What is Computer Hardware?
	(xi)	Given $H_0: \mu = 5, n = 9, \bar{X} = 2, t = -2$ find S .	(xii) Differentiate between Hard Copy and Soft Copy.
Q.No.3	(i)	Define Population.	(ii) What is Sampling?
	(iii)	Explain the purpose of Sampling.	(iv) Define Sampling Units.
	(v)	Describe any two Properties of Correlation Coefficient.	(vi) Define Simple Linear Regression Coefficient.
	(vii)	Explain Perfect Positive Correlation.	(viii) Describe Regressand.
	(ix)	Determine Regression Equation $y = a + bx$ if $n = 10, \Sigma x = 20, \Sigma y = 260, \Sigma x^2 = 3144, \Sigma xy = 3490$	(x) If $r = 0.48, S_{xy} = 36$ and $S_x^2 = 16$, then what will be the value of S_y ?
	(xi)	For an Infinite Population $\mu = 30, \sigma = 5, n = 100$, find $\mu_{\bar{x}}$ and $\sigma_{\bar{x}}^2$	
	(xii)	For Finite Population of size $N = 4$, find $\sigma_{\bar{x}}$ if $\mu = 6, \sigma = 5$ and $n = 2$	
Q.No.4	(i)	Explain the term Rank Correlation.	(ii) Define Contingency Table.
	(iii)	Given $n = 100, (A) = 40$ find (α)	(iv) Describe a Time Series.
	(v)	Explain the term Secular Trend.	(vi) Elaborate Histogram.
	(vii)	What is meant by Seasonal Trend?	(viii) Write a short note on Noise in Time Series.
	(ix)	Given $x = 0, 1, 2, 3$ find $\hat{y}$ if $\hat{y} = 6 + 2x$	

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Q.No.5	(a)	If $Z \sim N(0, 1)$ then find : (i) $P(Z < 1.75)$ (ii) $P(Z > -0.99)$ (iii) $P(Z > 1.45)$ (iv) $P(-1.5 < Z < 1.75)$	(04)																				
	(b)	If x is Normally Distributed with Mean 25 and Variance 16 then find : (i) $P(x \geq 30)$ (ii) $P(x \leq 16)$ (iii) $P(18 < x < 32)$	(04)																				
Q.No.6	(a)	What will be the Mean and Variance of Sample Means if : (i) Samples of 36 is drawn with replacement from the population 1, 2, 3, 4, 4, 4, 5, 6, 6, 7 (ii) Samples of 4 is drawn without replacement from the population 1, 2, 3, 4, 4, 4, 5, 6, 6, 7	(04)																				
	(b)	A population consists of values 2, 4, 5, 7 and 10. Draw all possible samples of size 2 without replacement. Calculate Proportion of Odd Numbers in each sample and Verify that $E(\hat{P}) = P$	(04)																				
Q.No.7	(a)	A Sample of 12 Measurements of the breaking strength of cotton threads gave a Mean $\bar{X} = 209$ grams and a Standard Deviation $\hat{S} = 35$ grams. Find 95% Confidence Limits for the actual mean breaking strength.	(04)																				
	(b)	Test the Hypothesis $H_0 : \mu \leq 26.3$ against the Alternative Hypothesis $H_1 : \mu > 26.3$ at 5% Level of Significance for the Data given as ; $n = 10$, $\bar{x} = 27$ and $\sigma = 1.2$	(04)																				
Q.No.8	(a)	The Equations of two Regression Lines are : $\hat{y} - 0.55x = 33$ $\hat{x} - 1.04y = 240$ Find : (i) r (ii) S_y^2 if $S_x^2 = 138926$	(04)																				
	(b)	Estimate the Regression Parameters of Straight Line by using Normal Equations and Estimate y for $x = 6$	(04)																				
		<table border="1"> <tr> <td>x</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>y</td> <td>8</td> <td>9</td> <td>13</td> <td>18</td> <td>27</td> </tr> </table>	x	1	2	3	4	5	y	8	9	13	18	27									
x	1	2	3	4	5																		
y	8	9	13	18	27																		
Q.No.9	(a)	Given the following Data : $(AB) = 150$, $(A\beta) = 272$, $(\alpha B) = 106$, $(\alpha\beta) = 132$ Find Association and Interpret it.	(04)																				
	(b)	Calculate Trend Values by 3-years Moving Average for the given Data :	(04)																				
		<table border="1"> <tr> <td>Years</td> <td>1980</td> <td>1981</td> <td>1982</td> <td>1983</td> <td>1984</td> <td>1985</td> <td>1986</td> <td>1987</td> <td>1988</td> </tr> <tr> <td>Values</td> <td>12</td> <td>14</td> <td>16</td> <td>18</td> <td>17</td> <td>16</td> <td>18</td> <td>10</td> <td>12</td> </tr> </table>	Years	1980	1981	1982	1983	1984	1985	1986	1987	1988	Values	12	14	16	18	17	16	18	10	12	
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