Note : Four choices A , B , C ,D to each question are given. Which choice is correct fill that circle in front of that Question No. on the Objective Bubble Sheet. 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) The Standard Normal Distribution is Symmetrical about :
(A) $Z = 1$ (B) $Z = 1.96$ (C) $Z = 2$ (D) $Z = 0$

(2) The limits $\mu \pm 36$ include _____ area under the normal curve :
(A) 99.73% (B) 95.45% (C) 90% (D) 100%

(3) Normal Probability density function is :
(A) Unimodal (B) Symmetrical (C) Bell Shaped (D) All of these

(4) Another name of the Probability Sampling is :
(A) Non Random Sampling (B) Sampling Error
(C) Random Sampling (D) Judgemental Sampling

(5) The point estimate of μ is :
(A) σ (B) σ^2 (C) μ (D) $\bar{X}$

(6) A plan for obtaining a sample from a population is called :
(A) Population Design (B) Sampling Design (C) Sampling Frame (D) Sampling Distribution

(7) The selection of Cricket team for the world cup is called :
(A) Random Sampling (B) Systematic Sampling (C) Purposive Sampling (D) Cluster Sampling

(8) Level of Significance is also called :
(A) β (B) Size of Test(α) (C) Power of Test (D) $1 - \beta$

(9) When b_{yx} is positive , then b_{xy} will be :
(A) Positive (B) Negative (C) Zero (D) One

(10) An independent variable is also called :
(A) Response Variable (B) Predictor (C) Explained Variable (D) Observed Variable

(11) The Choice of One Tailed Test and Two Tailed Test depends upon :
(A) α (B) β (C) H_1 (D) H_o

(12) Perfect positive correlation is signified by :
(A) 0 (B) -1 (C) ± 1 (D) $+1$

(13) The rise and fall of time series over periods longer than one year is called :
(A) Secular Trend (B) Irregular Variations
(C) Cyclical Variations (D) Seasonal Variations

(14) For 2 x 2 Contingency table , the degree of freedom is :
(A) 4 (B) 2 (C) 8 (D) 1

(15) The range of the Chi Square distribution is :
(A) $-\infty$ to $+\infty$ (B) $-\infty$ to 0 (C) 0 to ∞ (D) 0 to 100

(16) Graph of Time Series is called :
(A) Trend (B) Historigram (C) Histogram (D) Straight Line

(17) A Binary Digit is commonly called :
(A) Bit (B) 4 bits (C) Byte (D) Kilobyte

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.   BWP–24
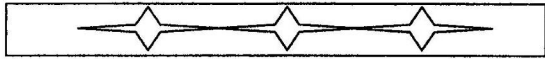
(Part - I)   22 x 2 = 44

Q.No.2	(i)	Describe the Normal Frequency Distribution .	(ii)	Why β_1 is Zero in Normal Distribution?
	(iii)	What is the relationship between : a) M . D and S . D of Normal Distribution b) Q . D and S . D of Normal Distribution	(iv)	In a Normal Distribution $\mu_4 = 1875$ Find the Parameter σ and μ_3 .
	(v)	If $X \sim N (100 , 100)$ Find Mean Deviation.	(vi)	Elaborate the term Estimator.
	(vii)	Define Level of Significance.	(viii)	Explain Null Hypothesis .
	(ix)	If $n = 16$, $\bar{x} = 52$, $\sigma = 10$, $\alpha = 0 . 10$ Compute 90% Confidence Interval.	(x)	Explain the term Byte in Computer use .
	(xi)	What is meant by Hardware ?		
	(xii)	Given $\mu = 5$, $n = 9$, $\bar{x} = 2$, $s = 4 . 5$ Calculate t – statistic .		
Q.No.3	(i)	Given $n = 55$, $\sigma_{\bar{x}}^2 = 27$ if $n = 165$ then find σ^2 and $\sigma_{\bar{x}}^2$.	(ii)	Define Sampling Unit.
	(iii)	What is Population?	(iv)	Write down two advantages of Sampling.
	(v)	Differentiate between Sampling and Non - Sampling Errors.	(vi)	If $n = 10$, $\sum xy = 1007425$, $\sum x^2 = 15,85000$ $\bar{x} = 125$, $\bar{y} = 80$ find byx .
	(vii)	Define Principle of Least Square .	(viii)	What is Sampling Frame?
	(ix)	Write two properties of Regression Co-efficient .	(x)	Interpret the meaning when $r = - 1$, $r = +1$
	(xi)	Define Negative Correlation.	(xii)	Given $b_{yx} = 0 . 86$, $b_{xy} = 0 . 95$ find ' r '.
Q.No.4	(i)	Define Dichotomy .	(ii)	What is a Time Series ?
	(iii)	The Coefficient of Rank Correlation of marks obtained by 8 students in two Subjects was found to be 0 . 19 , Find $\sum d^2$	(iv)	What is the difference between Correlation and Association?
	(v)	Write the main Components of Time Series.	(vi)	Differentiate between Histogram and Historigram.
	(vii)	What is Analysis of Time Series?	(viii)	Define Signal .
	(ix)	A Straight Line is fitted to a time series $\hat{y} = 2 + 1 . 7x$ to the year 1990 to 1994 taking origin at 1990 . Find Trend Values.		

B

P.T.O.

BNP–24

Q.No.5	(a)	If $X \sim N(56, 100)$. Find (i) $P(x \geq 68)$ (ii) $P(42 \leq x \leq 52)$	(04)
	(b)	If $X \sim N(70, 25)$. Find two points between which the central 70 % of the distribution.	(04)
Q.No.6	(a)	A finite population Consists of Numbers 2, 4, 6, 6, 8. Calculate the Sample Means for all possible random Samples of Size n = 2 without replacement. Form the Sampling distribution of the Sample Means and verify that : $\mu_{\bar{x}} = \mu$	(04)
	(b)	A Population Contains Values 1, 2, 3, 4. Find the Proportion (P) of odd numbers in all possible random Samples of size n = 2 with replacement. Form the Sampling Distribution of Sample Proportion. Also verify that $\mu_P = P$	(04)
Q.No.7	(a)	In a Random Sample of 500, there are 40 Components which are defective. Compute 99% Confidence Interval of proportion of defectives in the population.	(04)
	(b)	For a Random Sample of 10 from a Normal Population, it is given that $\bar{x} = 25$, $\sum x = 250$ and $\sum x^2 = 8000$ Test the Hypothesis at 5% level of significance that $\mu = 21.8$	(04)
Q.No.8	(a)	Given :	(04)

x	100	200	400	500
Y	70	70	80	100

Estimate the Regression Line taking Y as dependent Variable.
Also Estimate Y for X = 300

	(b)	If $r = 0.60$, $S_x = 1.50$, $S_y = 2.00$ find both Regression Coefficients.	(04)
Q.No.9	(a)	Out of 900 Persons, 300 are literates and 400 have traveled beyond the limits of their District. 200 are the literates among those who have traveled. Find out the Coefficient of association between the Traveling and Literacy.	(04)
	(b)	The following table shows the food grains Price Index Numbers of quarters for the years 1962 and 1963.	(04)

Year \ Quarters	1962	1963
I	93	97
II	97	102
III	96	106
IV	93	98

Find the trend values by using Two Quarter Centered Moving Average.

05-04-2024