

Note :- Section B is compulsory. Attempt any Three Questions from Section C.

SECTION - B

2. Write short answers to any Eight parts. (8 x 2 = 16)

- Write down the equation of normal distribution with mean=5 and variance is one.
- If X is $N(24, 4)$. Find the value of the maximum ordinate.
- Write down the equation of standard normal distribution.
- Define Normal Frequency Distribution.
- In a normal distribution if $\mu = 20$ and $\sigma = 5$. Find M.D and Q.D.
- Define the term estimation.
- Enlist the properties of a good point estimator.
- Define Null Hypothesis.
- Given $Z = 0.62$. $\sigma_{\bar{X}} = 16$ and $\mu = 90$. Find $\bar{X}$
- Given $\bar{X} = 120$, $\mu = 100$, $s = 34.75$, $n = 25$. Find t .
- What is CPU?
- What is meant by byte?

3. Write short answers to any Eight parts. (8 x 2 = 16)

- What is value of finite population? Correction factor when $n = 18$ and $N = 125$.
- If $N = 50$, $n = 25$, $\mu\hat{p} = 0.36$, find population proportion and $\sigma\hat{p}$?
- What is sampling design?
- Given $N_1 = 3$, $n_1 = 2$, $N_2 = 4$, $n_2 = 2$, $\sigma_1^2 = \frac{8}{3}$ and $\sigma_2^2 = \frac{5}{4}$. Find standard error of $(\bar{X}_1 - \bar{X}_2)$ when sampling is done without replacement.
- Define Infinite Population.
- Differentiate between simple random sampling and random sampling.
- Explain the term regression.
- Given that $b_{yx} = -1.6$, $b_{xy} = -0.4$, find r .
- Write the relationship between regression coefficients and correlation coefficient. (any two)
- What is curve fitting?
- Write down the equation of sum of squares of residual when fitting a second degree equation.
- What is meant by simple linear regression?

4. Write short answers to any Six parts. (6 x 2 = 12)

- Differentiate positive and negative attribute.
- If A and B are independent attribute and $n = 1024$, $(\alpha) = 880$, $(\beta) = 640$, find $(\alpha\beta)$
- Given the pairs of ranks $(4, 2)(1, 3)(2, 1)(5, 6)(6, 5)(3, 4)$. Find coefficient of rank correlation.
- Define Coefficient of Contingency and give its formula.
- What is meant by analysis of time series?
- If $\hat{y} = 10 + 3X$ find the trend values for $X = 1, 2, 3, 4$.
- What is additive model of time series?
- If $\bar{X} = 50$, $\bar{Y} = 110$ and $a = 10$. Find "b" in $Y = a + bx$
- Name the different methods used to measure the secular trend.

SECTION - C

Each question carries 4 + 4 = 8 Marks

5. (a) Let $X \sim N(20, 25)$, find the area under the normal curve:

- Below 30
- Above 25

- (b) If $X \sim N(60, 25)$, find the value of "a" such that $P(X < a) = 0.95$

6. (a) Draw all possible samples of size 2 with replacement from the population having units 1, 3, 5, 7 and show that $\sigma_{(\bar{X})}^2 = \frac{\sigma^2}{n}$

- (b) If the size of sample is 50 and $\sigma_{(\bar{X})}^2 = 30$, find $\sigma_{(\bar{X})}$ if sample size becomes 160.

(Turn Over)

CANCELLED