

2023

Time - 3 hours

Full Marks - 80

*Answer all groups as per instructions.
Figures in the right hand margin indicate marks.*

GROUP - A

1. Fill in the blanks. (all) [1 × 12]
- (a) The word statistics is derived from the Latin word _____.
 - (b) The number of observations corresponding to particular class in known as the _____ of that class.
 - (c) Mode = 3 Median – _____.
 - (d) Sum of the dispersions from _____ is minimum.
 - (e) Quartile Deviation is _____ of standard Deviation.
 - (f) In a symmetric distribution, coefficient $S_k =$ _____
 - (g) If $\beta = 3$, the distribution is called _____.
 - (h) The value of coefficient of correlation lies between _____.
 - (i) The regression analysis measures _____ between X and Y.

[2]

- (j) _____ test is satisfied by both Fisher's and Kelley's formulae.
- (k) _____ is the most suitable average for constructing index numbers.
- (l) The additive model of a time series is expressed as _____.

GROUP – B

2. Write notes on any eight of the following within two to three sentences each.

[2 × 8]

- (a) Secondary Data
- (b) Cross Sectional Data
- (c) Harmonic Mean
- (d) Range
- (e) Kurtosis
- (f) Probable Error
- (g) Partial Correlation
- (h) Splicing
- (i) Circular Test
- (j) Moving Average

[3]

GROUP – C

3. Answer any eight of the following questions within 75 words each. [3 × 8]

- (a) Distinguish between Primary Data and Secondary Data.
- (b) What is Geometric Mean ? Explain the steps for computation of Geometric mean.
- (c) Mean of 50 items was 80. It was discovered later that two items were wrongly taken as 23 and 24 in place of 32 and 42 respectively. Ascertain the correct mean.
- (d) Distinguish between Mean Deviation and Quartile Deviation.
- (e) Determine the value of Median and Mode if $\bar{X} = 26.9$, $\delta = 6.5$ and Coefficient $S_k = 0.32$.
- (f) Distinguish between Correlation and Regression analysis.
- (g) What is Deflating ? Explain the methods of deflating.
- (h) Distinguish between Fixed base Index and Chain base Index.
- (i) What are seasonal indices ? Explain different methods of computation of seasonal index.
- (j) Explain the additive and multiplicative models of trend analysis.

[4]

GROUP – D

Answer all questions within 500 words each.

4. What do you mean by Arithmetic Mean ? Explain briefly different mathematical properties of arithmetic mean. [7]

OR

Find out the missing frequencies in the following series, where Mode = 24 and Number of items is 100 :

Class	0-10	10-20	20-30	30-40	40-50
Frequency	14	?	26	?	18

5. Define Standard Deviation. Explain briefly different algebraic properties of Standard Deviation. [7]

OR

From the following distribution, find out Karl Pearson's skewness and its coefficient :

Wages	10	20	30	40	50	60
No. of workers	3	7	10	20	6	4

6. From the following data relating to sales and Net Profits of a firm, find the Rank Correlation Coefficient : [7]

Sales	60	80	90	60	100	130	120	110
Net Profit	30	40	50	40	60	70	40	75

[5]

OR

Answer the following questions within 250 words each.

- (a) Distinguish between correlation and causation. [3½]

- (b) Standard Error of Estimates [3½]

7. What do you mean by Test of adequacy of Index Number ? Explain time reversal test and factor reversal test with suitable examples. [7]

OR

Explain within 250 words each.

- (a) Different components of time series analysis. [3½]

- (b) Consumer price indices. [3½]