



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

B.A./B.Sc. Honours 3rd Semester Examination, 2023

CC7-ECONOMICS (307)

STATISTICAL METHODS FOR ECONOMICS-I

Time Allotted: 2 Hours

Full Marks: 60

The figures in the margin indicate full marks.

GROUP-A

1. Answer any **four** questions from the following: 3×4 = 12
- (a) Prove that the S.D. of first n natural numbers is $\sqrt{\frac{n^2 - 1}{12}}$.
- (b) For a symmetrical distribution, $Q_1 = 24$ and $Q_3 = 42$. Find the value of median.
- (c) What is spurious correlation?
- (d) What do you mean by skewness of a distribution?
- (e) Distinguish between Variable and Attribute with examples.
- (f) What are normal equations?

GROUP-B

Answer any four questions from the following

6×4 = 24

2. Prove that coefficient of correlation lies between (-1) and $(+1)$.
3. For a given set of observations x_1, x_2, \dots, x_n , show that $\sum_{i=1}^n (x_i - A)^2$ is least when $A =$ Arithmetic Mean.
4. Discuss the use of Lorenz curve for the representation of distribution of income.
5. Prove that regression coefficients do not depend on change in origin but depend on change in scale.
6. (a) Under what conditions, Mean = Median = Mode? 2+4
- (b) The mean age of a combined group of boys and girls is 15 years. If the mean age of the group of boys is 13 years and that of the group of girls is 18 years, find the percentage of girls and boys in the group.

7. Find Mean Deviation about Median for following frequency distribution:

Daily wage (Rs.):	8-11	12-15	16-19	20-23	24-27
No. of workers :	5	11	20	10	4

GROUP-C

Answer any two questions from the following

12×2 = 24

8. For a given set of observations, show that $AM \geq GM \geq HM$.

9. (a) What do you mean by rank correlation?

3+9

(b) Compute Karl Pearson's coefficient of correlation for the following series relating to price and supply of a commodity.

Price (Rs.) :	11	12	13	14	15	16	17	18	19	20
Supply (Kg) :	30	29	29	25	24	24	24	21	18	15

10. Find missing frequencies from the following distribution if the mean daily expenses of 1000 families are known to be Rs. 87.50.

Daily Expenses (in Rs.):	40-49	50-59	60-69	70-79	80-89	90-99	100-109
No of families:	50	150	?	100	200	?	90

11. Calculate the two regression equations for the following data.

8+2+2

Price (Rs.):	10	12	13	12	16	15
Amount demanded:	40	38	43	45	37	43

Estimate the likely demand when the price is Rs. 20. Give economic interpretation of regression coefficients.

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