



‘समानो मन्त्रः समितिः समानी’

**UNIVERSITY OF NORTH BENGAL**  
B.Com. Honours 2nd Semester Examination, 2023

**GE2-COMMERCE**

**STATISTICS**

**NEW SYLLABUS**

Time Allotted: 2 Hours

Full Marks: 60

*The figures in the margin indicate full marks.*

**GROUP-A**

Answer any *two* questions

12×2 = 24

1. Compute Laspeyre's, Paasche's and Fisher's Index numbers from the following data. Show that Fisher's number satisfies the time reversal test:

12

Items	P <sub>0</sub>	Q <sub>0</sub>	P <sub>1</sub>	Q <sub>1</sub>
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

2. (a) The marks of the students are given as follows. Calculate the Correlation Coefficient:

6+6

Math:	23	27	28	29	30	31	33
Eco:	18	22	23	24	25	26	28

- (b) Performance of ten competitors in a beauty competition is ranked by three Judges in the following order use Spearman rank correlation co-efficient to determine the correlation and comment on the result:

1st Judge:	1	6	5	10	3	2	4	9	7	8
2nd Judge:	3	5	8	4	7	10	2	1	6	9
3rd Judge:	6	4	9	8	1	2	3	10	5	7

3. (a) Prove that standard deviation is independent of any change of origin but is dependent on change of scale.

6+6

- (b) Derive the regression co-efficient with the help of the least square principles.

4. (a) Distinguish between mutually exclusive and independents events. Illustrate with examples.

6+6

- (b) Find the probability of drawing a white ball in the second draw without replacement of the ball in the first draw from a bag containing 6 white and 4 red balls.

**GROUP-B**

5. Answer any *four* questions: 6×4 = 24
- (a) A class consists of 50 students out of which the number of girl students is 10. In the class 2 girls and 5 boys are rank holders in the previous examination. If a student is selected at random from the class and is found to have rank holder, what is the probability that the student selected is a girl? 6
- (b) From the data show that Paasche's formula does not satisfy the Factor Reversal Test: 6

Commodity	Price		Quantity	
	Base	Current	Base	Current
A	6	10	50	56
B	2	2	100	120
C	4	6	60	60
D	10	12	30	24
E	8	12	40	36

- (c) Using regression co-efficient, find regression equations of the following data: 6

X:	1	1.5	2	2.5	3	3.5	4
Y:	5.3	5.7	6.3	7.2	8.2	8.7	8.4

- (d) Find the co-efficient of skewness from the following data: 6

X:	0-10	10-20	20-30	30-40	40-50
Y:	5	10	12	15	20

- (e) Find co-efficient of correlation from the following data: 6  
 $\sum X = 56, \sum Y = 40, \sum X^2 = 524, \sum Y^2 = 256, \sum XY = 364, N = 8.$
- (f) Write the properties of normal distribution curve. 6

**GROUP-C**

6. Answer any *four* questions: 3×4 = 12
- (a) Distinguish between population and sample with proper example. 3
- (b) Two coins are tossed simultaneously. Find the probability of getting the same face on both the coins. 3
- (c) Co-efficient of correlation between  $x$  and  $y$  is 0.52, their co-variance is +7.8. If the variance of  $x$  is 16, find the standard deviation of  $y$ . 3
- (d) From some financial statistics, it is found that the monthly average electricity charges was ₹2,460 and S.D. is ₹120. The monthly average of direct wages was ₹42,000 and S.D. is ₹1,200. State which is more variable with proper reasons? 3
- (e) What is cost of living index and how is it calculated? 3
- (f) Out of the three measures of AM, Median and Mode, which is better and why? 3

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