



'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL
B.Com. Honours 3rd Semester Examination, 2021

GE3-COMMERCE

BUSINESS STATISTICS

Time Allotted: 2 Hours

Full Marks: 60

*The figures in the margin indicate full marks.
All symbols are of usual significance.*

GROUP-A

Answer any *two* questions

12×2= 24

1. (a) Find M.D. about mean from the following table:

6+6

Weight:	45-50	50-55	55-60	60-65	65-70
No. of Persons	10	16	32	28	14

- (b) Calculate A.M., median and mode from the following table:

Mid. Value:	15	20	25	30	35	40	45	50
Frequency:	2	22	19	14	3	4	6	1

2. (a) Seven students obtained percentage of marks in a Test (X) and Exam (Y). Calculate correlation coefficient.

6+6

X:	51	63	73	46	50	60	47
Y:	49	72	74	45	58	66	50

- (b) Performance of Eight candidates in a contest are shown below:

Candidate	1st Judge	2nd Judge
A	5	4
B	3	2
C	2	1
D	1	3
E	4	5
F	7	8
G	8	6
H	6	7

Using Spearman's formula, calculate Rank Correlation.

3. (a) For the following data, verify that the 5 years weighted moving average with weights 1, 2, 2, 2, 1 respectively is equivalent to 4 years centred moving average: 6+6

Year:	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Sales: (in Rs. lakhs)	5	3	7	6	4	8	9	10	8	9	9

- (b) Fit a least square trend line to the following data:

Year:	1960	1965	1970	1975	1980	1985
Volume of Sales (in lacs):	12	15	17	22	24	30

Estimate the volume of Sales for 1990.

4. (a) Prove that the S.D. is independent of any change of origin but is dependent on the change of scale. 6+6
- (b) If $P(A) = 1/4$, $P(B) = 2/5$ and $P(A \cup B) = 1/2$. Find (i) $P(A \cap B)$, (ii) $P(A \cap B^c)$ (iii) $P(A^c \cap B^c)$, (iv) $P(B|A^c)$ and (v) are A and B independent?

GROUP-B

5. Answer any **four** questions: 6×4= 24

- (a) Prove that the Fischer’s Ideal Index Number satisfies both the Time Reversal Test and Factor Reversal Test. 6
- (b) Using the following data, show that Laspeyres’ Price Index formula does not satisfy the Time Reversal Test: 6

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

- (c) Prove that: 6
 If A and B are two independent events, then \bar{A} and \bar{B} are also independent.
- (d) Using Regression Co-efficient, find both the regression equations of the following data: 6

X:	6	2	10	4	8
Y:	9	11	5	8	7

- (e) By using Bowely’s formula, find the Co-efficient of Skewness from the following frequency distribution: 6

Marks:	0-10	10-20	20-30	30-40	40-50
No. of Students:	5	9	12	8	6

(f) Find Arithmetic Mean from the following data:

6

$x:$	10	20	30	40	50	60
$f:$	6	4	6	12	8	4

GROUP-C

6. Answer any *four* questions:

3×4 =12

(a) Enumerate the merits of Sample Survey.

3

(b) Find G.M. of the following numbers:

3

1, 2, 4, 8, 16

(c) Briefly highlight the types of Sampling Methods.

3

(d) Calculate mode from the following table:

3

Marks	No. of Students
Less than 45	20
Less than 40	17
Less than 35	12
Less than 30	5
Less than 25	2

(e) Mention any three uses of Quartile.

3

(f) Prove that $AM \geq GM \geq HM$.

3

—x—