



‘সমানো মন্ত্র: সমিতি: সমানী’

UNIVERSITY OF NORTH BENGAL
BBA Honours 5th Semester Examination, 2023

CC11-BBA (501)**BUSINESS STATISTICS**

Time Allotted: 2 Hours

Full Marks: 60

*The figures in the margin indicate full marks.**Candidates should answer in their own words and adhere to the word limit as practicable.**All symbols are of usual significance.***GROUP-A****Answer any two questions from the following**

12×2 = 24

1. (a) Find the standard deviation from the following data: 6

Marks	20-30	30-40	40-50	50-60	60-70
No. of Students	2	35	46	12	5

- (b) Find the regressions of
- x
- on
- y
- from the following data: 6

$$\Sigma x = 24 \quad \Sigma y = 44 \quad \Sigma xy = 306$$

$$\Sigma x^2 = 164 \quad \Sigma y^2 = 574 \quad n = 40$$

Find the estimated value of x when $y = 6$.

2. (a) In the following table are recorded data showing the test scores made by the salesmen on an intelligence test and their weekly sales: 7+5

Salesmen	1	2	3	4	5	6	7	8	9	10
Test Scores	50	70	50	60	80	50	90	50	60	60
Sales (₹ lakh)	25	60	45	50	45	20	55	30	45	30

Calculate Pearson's coefficient of correlation between intelligence and efficiency in salesmanship.

- (b) If the interest paid on each of three different sums of money yielding 5%, 6% and 8% simple interest per annum respectively is the same, what is the average yield percent on the total sum invested?

3. (a) Using the following data show that Fisher's Index number satisfies the Factor Reversal Test: 6+6

Commodity	Price (₹) per unit		Number of Units	
	Base Period	Current Period	Base Period	Current Period
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

- (b) In a bolt factory, the machines
- M_1
- ,
- M_2
- and
- M_3
- manufacture respectively 25, 35 and 40 percent of the total product. Of their output 5, 4 and 2 percent respectively defective bolts. One bolt is drawn at random from the product and is found to be defective. What is the probability that it was manufactured by third machine?

4. (a) Heights of 10 students of a college were found to be 70, 67, 62, 68, 61, 68, 70, 64, 66 and 64 inches. Is it reasonable to claim that their average height is greater than 64 inches? Test at 5% level. 6+6
- (b) The scores of two batsmen, A and B, in ten innings during a certain season are as under:

Innings	1	2	3	4	5	6	7	8	9	10
A	32	28	47	63	71	39	10	60	96	14
B	19	31	48	53	67	90	10	62	40	80

Find which of the batsmen is more consistent in scoring.

GROUP-B

5. Answer any **four** questions: 6×4 = 24
- (a) The mean weight of 150 students in a class is 60 kg. The mean weight of boy students is 70 kg and that of girl students is 55 kg. Find the number of boys and girls in the class. 6
- (b) A frequency distribution gives the following results: 6
- (i) Coefficient of variation 5,
 (ii) Variance is 4 and
 (iii) Karl Pearson’s coefficient of skewness is 0.5.
 Find mean and mode of the distribution.
- (c) In a big city 325 men out of 600 were found to be smokers. Does this information support the conclusion that the majority of men in this city are smokers?
- (d) The regression equations calculate from a given set of observations are 6
- $$4x - 5y + 33 = 0 \text{ and } 20x - 9y = 107$$
- Find Arithmetic Mean values of x and y . Also, find coefficient of correlation between x and y .
- (e) A batch contains 10 toys out of which 4 are defective. If 3 toys are chosen at random, what is the probability that none of them is defective? 6
- (f) Explain the uses of t-test and Z-test in hypothesis testing. 6

GROUP-C

6. Answer any **four** questions: 3×4 = 12
- (a) Karl Pearson’s coefficient of correlation between two values x and y is 0.52, their covariance is +7.8. If variance of x is 16, find the standard deviation of y .
- (b) For a skewed distribution mean is 172, median is 167 and SD is 60. Find the coefficient of skewness.
- (c) Show that $AM > GM$.
- (d) What is the relation between correlation coefficient and the two-regression coefficient?
- (e) Distinguish between Primary Data and Secondary Data.
- (f) Write a note on Central Limit Theorem.

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