UNIVERSITY OF NORTH BENGAL

B.Com. Honours 3rd Semester Examination, 2023

GE3-COMMERCE

BUSINESS STATISTICS

OLD 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. (a) Calculate Arithmetic Mean and Mode from the following distribution: 4+3

Incomes	0-10	10-20	20-30	30-40	40-50
No. of Employees	17	28	33	25	12

   (b) From the following frequency distribution find missing frequencies: 5

IQ	No. of Students	IQ	No. of Students
55-64	2	105-114	?
65-74	19	115-124	92
75-84	78	125-134	14
85-94	?	135-144	4
95-104	301		

   You are given the total frequency is 900 and the Median = 100.48.

2. (a) Calculate Pearson's coefficient of correlation between selling expenses and sales given below: 6+6

Selling Exp.:	35	47	41	43	39	37	45	42	38	46
Sales:	79	83	87	86	80	82	89	86	81	85

   (b) The following results are extracted from the record of age and weight of a group of children:

	Age (year)	Weight (kg)
Mean	8	23
Variance	4	16

   and $\sum (x - \bar{x})(y - \bar{y}) = 64$

   Find two regression equations.

3. (a) Calculate Price Index using the following data of 2021 taking base as 2014 by (i) Laspeyres (ii) Paasche's and (iii) Fisher's.   6+6

Commodities	2014		2021	
	Quantity	Price	Quantity	Price
A	40	25	50	30
B	60	20	55	26
C	25	16	30	15
D	56	24	45	18

(b) Find three year's Weighted Moving Average from the following:

Years	2015	2016	2017	2018	2019	2020	2021	2022
Values	6	5	9	11	8	10	15	13

Weights are given as 1, 3, 2.

4. (a) Differentiate between: (2+2)+8
      (i) Population and Samples
      (ii) Parameters and Statistics.

(b) Explain the various types of sampling methods.

GROUP-B

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

(a) Calculate coefficient of variation from the following information: 6

Classes	0-9	10-19	20-29	30-39	40-49
f	6	13	22	15	8

(b) Find Bowley's Coefficient of Skewness: 6

Classes	1-10	11-20	21-30	31-40	41-50
f	3	7	12	6	4

(c) Ascertain least square trend equation from the following and estimate the value for the year 2022:   6

Year	2015	2016	2017	2018	2019	2020
Values	34	41	49	60	72	86

(d) Calculate Spearman's coefficient of correlation from the following data: 6

Marks in Math	73	95	16	42	65	73	36	25	58	86
Marks in Stats	43	89	62	56	78	62	19	27	38	76

(e) An urn contains 5 black and 4 white balls. Another urn contains 6 black and 3 white balls. A ball is transferred from first urn to second and then a ball is drawn from second which turned out as white. What is the probability that the transferred ball is black?   6

(f) What is Cost of Living Index? What are its advantages and limitations?   2+2+2

GROUP-C

6.   Answer any *four* questions: 3×4 = 12

(a) Given Mean = 60, Mode = 56 and coefficient of variation is 20%. Find Median and Standard Deviation.   3

(b) Two regression coefficients are –1.6 and –0.4. Find Coefficient of Correlation.   3

(c) Two dice are thrown. What is the probability of getting a sum of 10?   3

(d) Calculate Harmoni Mean: 3

$$x \to \quad 2 \quad 4 \quad 6 \quad 8$$
$$f \to \quad 3 \quad 5 \quad 6 \quad 2$$

(e) The first moment of a distribution about 5 is 4. Find A.M.   3

(f) Calculate Geometric Mean: 3
      6, 9, 4

——×——