III Semester B.B.A. Examination, February/March 2024
(NEP) (Freshers and Repeaters)
BUSINESS ADMINISTRATION
Paper – 3.3 : Statistics for Business Decisions

Time : 2½ Hours

Max. Marks : 60

Instruction : *Answers should be written completely in* **English** *only.*

SECTION – A

Answer **any five** of the following questions. **Each** question carries **two** marks :

(5×2=10)

1. a) What is secondary data ?

   b) What do you mean by tally bar ?

   c) Define sampling.

   d) Mention any two measures of central tendency.

   e) What is probable error ?

   f) State any two uses of time series analysis.

   g) What is time reversal test ?

SECTION – B

Answer **any three** of the following questions. **Each** question carries **four** marks :

(3×4=12)

2. What is a table ? Explain any three parts of a statistical table.

3. Explain the components of time series analysis.

4. Compute standard deviation for the following data :

   45 103 147 205 160 80 40 52

5. From the following data, calculate the rank correlation between X and Y.

X	15	22	31	42	19	25
Y	10	18	35	40	20	28

6. You are given the following data representing the cost and weight of different items in a consumer basket :

Items	Index	Weight
Housing	200	30
Transportation	180	25
Utilities	150	20
Groceries	220	15
Health care	250	10

Calculate the cost of living index.

SECTION – C

Answer **any three** of the following questions. **Each** question carries **ten** marks :

(3×10=30)

7. The performance of two sales teams, X and Y is as under :

Teams	X	Y
No. of salesman	150	200
Average sales (₹)	1,200	1,000
Standard deviation (₹)	180	150

a) Determine which team generated higher total sales revenue.

b) Which team shows more variability in sales performance ?

8. The number of hours spent on a mobile app and the in-app purchases made by users is given below :

Hours spent	10	15	20	25	30	35	40
In-App Purchases	5	10	15	20	25	30	35

Calculate the Karl Pearson correlation coefficient and interpret the result.

9. The data regarding marketing expenses (X) and customer acquisition (Y) is given below :

Marketing Expenses	50	60	70	80	90	100
Customer Acquisition	200	240	280	320	360	400

a) Determine the regression equations.

b) Estimate the likely customer acquisition when the marketing expenses are ₹ 75.

c) Estimate the likely marketing expenses when the customer acquisition is 300.

10. The data for the trend in the annual sales revenue for a software company is given below :

Year	2019	2020	2021	2022	2023
Revenue (₹ in crores)	75	90	110	130	150

a) Apply the method of least squares to fit a straight-line trend to the data.

b) Show the trend line on a graph.

c) Estimate the expected revenue for the year 2025.

11. Construct Fisher's ideal index number from the following and show how it satisfied Time Reversal Test (TRT) and Factor Reversal Test (FRT).

Commodity	2019		2022	
	Price	Quantity	Price	Quantity
M	20	8	30	10
N	20	10	40	8
O	40	5	50	12
P	60	20	60	16
Q	10	6	40	10

SECTION – D

Answer **any one** of the following questions. **Each** question carries **eight** marks : **(1×8=8)**

12. The distribution of the number of products sold per day in a retail store is as under :

Products sold	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of days	20	30	25	15	10

Draw a histogram to represent the distribution of products sold per day determine the mode graphically. Verify the results.

13. Draw Ogive curves and locate median graphically.

Class interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	25	30	60	80	50	15	10