III Semester B.B.A. Examination, February/March 2024
(NEP) (F+R)
BUSINESS ADMINISTRATION
3.3 : Business Statistics

Time : 2½ Hours

Max. Marks : 60

*Instruction : Answer should be written in **English** only.*

SECTION – A

Answer **any 6** sub-questions. **Each** sub-question carries **2** marks.　　　　(6×2=12)

1. a)　Define statistics in plural sense.

　b)　What do you mean by dependent variable ?

　c)　What is Histogram ?

　d)　How do you calculate 'Mode' in case it is ill-defined ?

　e)　What is perfect correlation ?

　f)　Find 'r' if b_{xy} = 2.5 and b_{yx} = 1.6.

　g)　State the methods of construction of index number.

　h)　If Σx = 300, N = 20, σ = 2.7. Find C.V.

SECTION – B

Answer **any three** of the following questions. **Each** question carries **4** marks.　(3×4=12)

2. In 2022, out of total customers visiting a hotel, 750 were non-vegetarians and 1250 were vegetarians. In total there were 550 male non-vegetarian customers and 300 female vegetarian customers. In 2023, the total number of customers increased by 25%, while non-vegetarian customers increased by 20%. In all there were 1700 male customers among whom 650 were non-vegetarians in 2023. Tabulate the above information.

3. The following data relate to the Monthly Expenditure (in ₹) of two families A and B.

Items of Expenditure	Expenditure	
	Family 'A'	Family 'B'
Food	16,000	12,000
Clothing	8,000	6,000
Rent	6,000	5,000
Light and Fuel	2,000	1,000
Miscellaneous	8,000	6,000

Represent the above data by a suitable percentage diagram.

4. Calculate the arithmetic mean from the following data.

Marks	:	0 – 10	10 – 30	30 – 60	60 – 100	100 – 150
No. of Students	:	5	12	20	8	5

5. Calculate the rank correlation coefficient for the rank of 10 students assigned by two teachers.

Students	1	2	3	4	5	6	7	8	9	10
Rank (Judge 1)	8	7	6	3	2	1	4	9	10	5
Rank (Judge 2)	10	8	5	2	1	3	6	9	7	4

6. From the following data, compute price index by applying weighted average of price relative method.

Commodity	P_0 (₹)	q_0	P_1 (₹)
Sugar	30	20 kg	40
Flour	15	40 kg	16
Milk	10	10 ltr	15

SECTION – C

Answer **any 3** questions. **Each** question carries **12** marks.   **(3×12=36)**

7. Draw "less than" and "more than ogives" from the data given below and find the median.

Profits (₹ lakh)	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
No. of Companies	6	8	12	25	6	3

8. X Ltd. is actively considering the following two mutually projects for adoption.

Year	Project X Cost Profit (₹ in lakh)	Project Y Cost Profit (₹ in lakh)
1	10	5
2	5	25
3	20	45
4	40	30
5	60	30

Which of the two is more risky project ?

9. With the following data relating to 6 cities. Calculate the coefficient of correlation by Pearson's method between the density of population and death rate.

City	Area (in kms)	Population (in '000)	Number of deaths
A	150	30	300
B	180	90	1440
C	100	40	560
D	60	42	840
E	120	72	1224
F	80	24	312

10. From the following data, obtain the two regression equations.

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

11. From the data given below calculate Fishers ideal index and prove that it satisfies both TRT and FRT.

Item	Base Year		Current Year	
	Price (₹)	Quantity	Price (₹)	Quantity
A	5	25	6	30
B	3	8	4	10
C	2	10	3	8
D	10	4	3	5