B.Com DEGREE EXAMINATION,NOVEMBER 2019
I Year I Semester
Business Statistics and Operations Research-I

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define Statistics
2. Present the following information in a suitable form supplying the figure not directly given. In 1975 out of a total of 4,000 workers in a factory, 3300 were members of a trade union. The number of women workers employed was 500 out of which 400 did not belong to any union.

   In 1974, the number of workers in the union was 3,450 of which 3,200 were men. The number of non - union workers was 760 of which 330 were women.
3. Define primary data
4. Find the mode of 2,3,5,5,2,6,7,6,5.
5. Find the median from the following data

   17, 19, 21,13,16,18,24,22,20
6. Find the rank correlation, $\sum d^2 = 36$, $N = 10$.
7. Find the range and coefficient of range.

   3, 7, 21, 24,37,40,45
8. Define time series.
9. What are the components of time series analysis?
10. What is LPP?
11. Draw a circular diagram from the following data.

Type of Commodity	Expenses in Rupees	
	Family A	Family B
Food	300	500
Rent	200	350
Clothes	125	250
Education	110	225
Miscellaneous Savings	90	150

12. Calculate Quartile coefficient of dispersion.

    $Q_3 = 44.29$ $Q_1 = 23.53$

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. What are the rules for constructing diagram.
14. Calculate Arithmetic mean from the following

Marks	4	8	12	16	20
No.of.students	6	12	18	15	9

15. Calculate Standard deviation from the following data

X	10	12	14	16	18	20	22
Y	3	5	9	16	8	7	2

16. Calculate Regression equations from the following data

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

17. Caculate Rank correlation co-efficient from the following data.

Judge-A	1	2	3	4	5	6	7	8	9	10
Judge-B	3	4	10	7	8	5	1	2	6	9

18. Fit a straight line trend for the following data by the method of least square .

Year	1996	1997	1998	1999	2000	2001
Production	7	9	12	15	18	23

19. Use graphical method to solve the following LPP

    $MaxZ = 3x + 5y$ Subject to

    $x + 2y \leq 2000$

    $x + y \leq 1500$

    $y \leq 600$

    $x, y \geq 0$

Section C $(2 \times 15 = 30)$ Marks

Answer any **TWO** questions

20. a) Discuss the various functions of statistics

    b) What is meant by Tabulation? What are the requisites of a good table?

21. Find the Karl Pearson's coefficient of correlation between X and Y series

X series	78	36	98	25	75	82	90	62	65	39
Y series	84	51	91	60	68	62	86	58	53	47

22. Find the quartile deviation and co-efficient of quartile deviation for the following distribution.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	8	20	25	30	12	5

23. Determine if there is any seasonality in the data given below. What the are the seasonal indices for various quarters.

Year	1st quarter	2nd quarter	3rd quarter	4th quarter
1985	3.7	4.1	3.3	3.5
1986	3.7	3.9	3.6	3.6
1987	4.0	4.1	3.3	3.1
1988	3.3	4.4	4.0	4.0