B.Com. DEGREE EXAMINATION,NOVEMBER 2018
I Year I Semester
Allied - Paper I
BUSINESS STATISTICS AND OPERATIONS RESEARCH-I

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

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

Answer any **TEN** questions

1. What is Tabulation of data?
2. Represent the following data of a company by a simple bar diagram:

Year	Sales (Rs. In crores)
2011-12	6
2012-13	9
2013-14	12
2014-15	10
2015-16	15

3. Define standard deviation.
4. The following are the prices of shares of XYZ Ltd. from Monday to Saturday.

Day	Price (Rs.)	Day	Price (Rs.)
Monday	200	Thursday	160
Tuesday	210	Friday	220
Wednesday	208	Saturday	250

Calculate range.

5. The following are the size of shoes as worn by 10 persons. Calculate the modal size.

Size of Shoe

4, 5, 6, 5, 7, 6, 8, 5, 4, 5

6. Define Correlation.
7. Calculate the co-efficient of correlation between X and Y series from the following data.

$\sum XY = 122$ $\sum X^2 = 136$ $\sum Y^2 = 138$

8. Given the following data, compute regression equation Y on X.

	X	Y
Average	7.6	14.8
Standard Deviation	3.6	2.5

9. What are the components of Time series?
10. What is the formula for seasonal index under simple average method?
11. What is LPP?
12. Model building is the essence of the Operations Research (True / False)

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

Answer any **FIVE** questions

13. What are the objectives of classification?
14. Calculate Arithmetic mean from the following discrete series:

Value:	1	2	3	4	5	6	7	8	9
Frequency:	7	11	16	17	26	31	11	1	1

15. Calculate Mean deviation about Median for the items:

    7, 4, 10, 9, 15, 12, 7, 9, 7

16. Calculate 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

17. From the following details, find the value of X when Y = 70.

	X	Y
Arithmetic mean	67	65
Standard deviation	3.5	2.5
Correlation	0.80	

18. Calculate three-yearly moving average of the following data:

Year :	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
No. of students:	15	18	17	20	23	25	29	33	36	40

19. Calculate the two regression equations and the coefficient of correlation from the data given below:

Marks in Statistics(out of 50) :	40	38	35	42	30
Marks in Mathematics(out of 50) :	30	35	40	36	29

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

Answer any **TWO** questions

20. The profits (in Rs. crores) earned by 100 companies during 2016-17 are shown below:

Profits(Rs.Crores)	No.of Companies
20-30	4
30-40	8
40-50	18
50-60	30
60-70	15
70-80	10
80-90	8
90-100	7

Compute (a) Mean (b) Median (c) Standard Deviation.

21. Calculate coefficient of correlation from the following data and comment on the results:

Experience (X) :	16	12	18	4	3	10	5	12
Performance (Y) :	23	22	24	17	19	20	18	21

22. Given the restrictions

$x \geq 0, y \geq 0$

$2x + y \leq 20$

$x + 2y \leq 20$

Indicate the feasible region on graph and maximize the function x +3y.

23. Fit a straight line trend to the following data using method of least squares:

Year :	1993	1994	1995	1996	1997	1998	1999
Sales(Y):	83	60	54	21	22	13	23