



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

## B.Com. DEGREE EXAMINATION – COMMERCE

SECOND SEMESTER – NOVEMBER 2016

### ST 2102 - BUSINESS STATISTICS

Date: 15-11-2016  
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

#### SECTION A

Answer ALL questions.

(10 x 2 = 20 Marks)

1. What are the advantages of classification of data?
2. State the rules for diagrammatic representations.
3. What is weighted arithmetic mean?
4. What are the various measures of dispersion?
5. Define measures of skewness.
6. Pearson's coefficient of skewness is - 0.4 and the value of the mean and median are 45 and 48 respectively. Determine the value of the standard deviation
7. State the merits of finding the trend using method of least squares.
8. State the merits of Least Squares method of trend.
9. Define operations research.
10. State the merits of Index numbers

#### SECTION B

Answer any FIVE questions

(5 X 8 = 40 Marks)

11. What are the types of classification? Explain.
12. Plot less than Ogive and more than Ogive for the following data:

Cost of production	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14	14 - 16
No. of farms	13	11	18	12	19	7

13. From the following data find mean and median

Class Interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency	83	45	33	72	36	24	15	31

14. Find the Mean and Variance of the combined sample from the following data:

Sample	Mean	Variance	Size
I	85	16	70
II	96	25	30
III	100	36	60

15. Calculate standard deviation and coefficient of variations for the following data

Class	0-10	10-20	20-30	30-40	40-50	50-60	60 -70
frequency	8	12	17	14	9	7	4

16. Find the correlation coefficient between production and sales of a factory from the data given below:

Production (in tonnes)	50	55	63	67	65	60	61
Sales (in thousands)	35	36	42	51	54	53	55

17. Using three yearly moving average determine the trend and short term fluctuations:

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Production	22	24	25	23	26	24	27	26	29	25

18. Use the graphical method to solve the following LPP.

$$\text{Maximize } Z = 20x + 30y$$

Subject to constraints,

$$3x + 3y \leq 36$$

$$5x + 2y \leq 50$$

$$2x + 6y \leq 60$$

$$x, y \geq 0$$

### SECTION C

Answer any TWO questions

(2 X 20 = 40 Marks)

19. Calculate Bowley's Coefficient of Skewness:

Class Interval	1 – 5	6 – 10	11 – 15	16 – 20	21 – 25	26 – 30	31 – 35
Frequency	3	4	8	30	10	6	2

20. From the following frequency distribution, calculate the first four central moments,  $\beta_1$  and  $\beta_2$ . Also comment upon the nature of distribution.

Class	1 – 5	6 – 10	11 – 15	16 – 20	21 – 25	26 – 30	31 – 35
Frequency	3	4	68	30	10	6	2

21. Using the following data compute Fisher's Ideal price index numbers and verify the Time reversal test and factor reversal test.

COMMODITY	Base year price	Base year quantity	Current Year Price	Current Year quantity
A	5	50	5	70
B	5	75	10	80
C	10	80	12	100
D	5	20	8	100
E	10	50	5	60

22. Four jobs 1, 2, 3 and 4 are to be assigned to four persons A, B, C, and D. The time taken (in minutes) by each of them on each job is given below.

	1	2	3	4
A	42	35	28	21
B	30	25	20	15
C	30	25	20	15
D	24	20	16	12

Work out the optimum assignment and the total minimum time taken

\*\*\*\*\*