



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Com. DEGREE EXAMINATION – COMMERCE

THIRD SEMESTER – APRIL 2017

ST 3104- BUSINESS STATISTICS

Date: 03-05-2017
09:00-12:00

Dept. No.

Max. : 100 Marks

SECTION A

Answer ALL the questions.

(10 x 2 = 20 Marks)

1. State the important of statistics.
2. What are the methods of collecting Secondary Data?
3. What are the properties of good averages?
4. Find range for the following data: 56, 70, 58, 65, 68, 40.
5. What is Coefficient of Variation?
6. Define measures of skewness.
7. What are regression equations?
8. Describe the semi average method of measuring trend.
9. State the merits of Index numbers.
10. What is degeneracy and non-degeneracy of the transportation problem?
11. Describe the semi average method of measuring trend.

SECTION B

(5 X 8 = 40 Marks)

Answer any FIVE questions

11. Explain the scope of statistics in business studies.
12. Below is given the frequency distribution of marks in statistics obtained by 100 students in a class. Determine the Ogive for this distribution and use it to determine the median.

Marks	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89	90 - 99
No. of students	8	10	25	31	11	12	2	1

13. Define Skewness. What are the measures of Skewness?
14. Explain the importance of Dispersion.
15. A sample of 12 fathers and their eldest sons gave the following data about their height in inches. Find their rank correlation coefficient.

Father	65	63	67	64	68	62	70	66	68	67	69	71
Son	68	66	68	65	69	66	68	65	71	67	68	70

16. Fit a straight line trend by the method of least squares for the flowing data. Assuming that the same rate of Change continues, what would be the predicted earnings for the year 1995?

Year	1987	1988	1989	1990	1991	1992	1993	1994
Earnings	38	40	65	72	69	60	87	95

17. Calculate the cost of living index number from the following data.

Commodity	Base year price	Current Year Price	Weight
Food	30	47	4
Fuel	8	12	2
Cloths	14	18	3
Rent	22	15	2
Miscellaneous	25	30	1

18. Use the graphical method to solve the following L.P problem.

$$\begin{aligned} &\text{Maximise } z=3x_1+2x_2 \\ &\text{subject to} \\ &3x_1+2x_2 \leq 6 \\ &2x_1+3x_2 \leq 6 \\ &x_1, x_2 \geq 0 \end{aligned}$$

SECTION C

(2 X 20 = 40 Marks)

Answer any TWO questions

19.(a) Calculate Mean, Median and Mode and verify empirical relation:

Class Interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency	9	6	12	15	13	9	6	4

(b) Compute the harmonic mean of the following data:

X	35	40	45	50	55	60
F	12	18	24	16	6	4

(12+8)

20.a) Calculate Bowley's coefficient of skewness from the following data:

Marks	0–10	10–20	20–30	30–40	40–50	50–60	60–70	70–80
No. of persons	12	15	18	25	14	30	23	18

b) Find the standard deviation for the following distribution:

<i>Class Interval</i>	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
<i>Frequency</i>	10	12	15	14	16	13

(12+8)

21. a) From the following data obtain the two regression equations. Calculate the coefficient of correlation and estimate the sales when purchase is 100:

Sales	94	97	103	124	67	124	54	73	111
Purchases	97	78	69	98	76	91	39	61	80

b) Calculate Karl Pearson's coefficient of correlation from the following data:

Demand (kg)	85	93	95	105	120	130	150	160
Price (Rs.)	15	18	20	24	30	35	40	50

(12+8)

22.(a) Calculate Laspeyre's Index number, Paasche's price index number and Marshall-Edgeworth Index and how it satisfies Time reversal test and Factor reversal test.

Commodity	2005		2006	
	Price (in Rs.)	Quantity (in kgs.)	Price (in Rs.)	Quantity (in kgs.)
A	10	80	20	100
B	11	140	24	130
C	14	90	25	120
D	12	60	15	70
E	15	70	22	100

(b) Explain the transportation problem.

(15+5)

