



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – STATISTICS

SECOND SEMESTER – APRIL 2014

ST 2102/2101 - BUSINESS STATISTICS

Date : 05/04/2014
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

SECTION A

Answer ALL questions.

(10 x 2 = 20 Marks)

1. State the uses of statistics.
2. What are the two types of statistical data?
3. What are the advantages of classification of data?
4. What are the important characteristics of a good average?
5. Explain sub divided bar diagram used to represent data.
6. State the importance of dispersion.
7. State Bowley's Coefficient of Skewness.
8. State the Regression Equation of X on Y and Y on X.
9. Define index numbers.
10. Define extreme point of the linear programming problem.

SECTION B

Answer any FIVE questions

(5 X 8 = 40 Marks)

11 What are the functions of statistics?

12. Construct a histogram and frequency polygon for the following frequency distribution:

Marks	21 – 27	28 – 34	35 – 41	42 – 48	49 – 55	56 – 62	63 – 69
No. of students	2	3	10	18	15	5	6

13. Calculate mean deviation about the median for the following data:

x	12	15	16	19	14
f	5	4	9	6	7

14. The mean salary paid to 1,000 employees of an establishment was found to be Rs. 180.40. Later on, after disbursement of salaries it was discovered that the salary of two employees was wrongly entered as Rs. 297, Rs. 165. Their correct salaries were Rs. 197 and Rs. 185. Find the correct arithmetic Mean.

15. Ten competitors in a beauty contest are ranked by 3 judges in the following order:

1 st judge	2	6	5	8	3	4	9	10	1	7
2 nd judge	1	7	3	9	4	5	10	8	2	6
3 rd judge	1	8	2	10	5	6	4	9	3	7

Find which two of them have the nearest approach.

16. Fit a straight line trend for the following data by the method of least squares. Also estimate the trend value for the Year 2005.

Year	1996	1997	1998	1999	2000	2001
Production	22	24	25	28	26	30

17. Construct the cost of living index number from the following group data:

Group	Weights	Group Index Number for a given year
Food	47	247
Fuel and light	7	293
Clothing	8	289
House rent	13	100
Miscellaneous	14	236

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

Maximize $Z=3x+5y$
 Subject to the constraints,
 $3x + 2y \leq 18$
 $x \leq 4$
 $y \leq 6$
 $x, y \geq 0$

SECTION C

Answer any TWO questions

(2 X 20 = 40 Marks)

19.(a) Calculate the mean, median and mode from the following data:

Marks	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90
No. of students	5	10	20	26	22	18	15	17

(10)

19.(b) From the following data, find out which product is more stable in prices.

Prices of product A (Rs.)	20	22	19	23	16
Prices of product B (Rs.)	10	20	18	12	15

(10)

20.(a) Calculate Karl Pearson's coefficient of Skewness from the following data:

Class Interval	0 – 6	6 – 12	12 – 18	18 – 24	24 – 30	30 – 36
Frequency	5	12	18	38	20	7

(10)

20(b) Find the correlation coefficient between production and sales of a factory from the data given below:

Production(in tones)	6	14	12	15	9	6	7	9	6	8
Sales (in Rs.)	4	10	6	9	6	9	8	12	9	7

(10)

21. Using 4-quarter moving average in respect of the following data, find (i) the trend (ii) short-term fluctuations and (iii) seasonal variations

Year	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter
1971	31	39	45	36
1972	42	44	57	45
1973	49	53	65	55
1974	47	51	62	50

(20)

22. Obtain optimal solution to the following transportation problem by Vogel's Approximation Method.

	TO				SUPPLY
	P	Q	R	S	
FROM	48	60	56	58	140
	45	55	53	60	260
	50	65	60	62	360
	52	64	55	61	220
DEMAND	200	320	250	210	

(20)
