



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Com. DEGREE EXAMINATION – COMMERCE

THIRD SEMESTER – NOVEMBER 2016

ST 3101 / ST 3104 - BUSINESS STATISTICS

Date: 12-11-2016
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

SECTION A

Answer ALL the questions.

10 x 2 = 20 Marks)

1. What are the characteristics of Statistics?
2. State the rules for diagrammatic representations
3. What are the merits of Arithmetic Mean?
4. Calculate harmonic mean for the following data: 5, 10, 15, 25, 35, 40
5. The mean of 200 items was 50. Later on it was discovered that two items were misread as 92 and 8 instead of 192 and 88. Find out the correct mean.
6. Define kurtosis.
7. Find the Standard deviation of first 10 natural numbers.
8. Write short note on moving average method.
9. Define feasible region.
10. State the limitations of index numbers.

SECTION B

Answer any FIVE questions

(5 X 8 = 40 Marks)

11. State the importance of statistics.
12. Draw a Percentage Bar Diagram for the following data:

<i>Expenditure</i>	<i>Company A</i>	<i>Company B</i>	<i>Company C</i>
Wages	2160	2600	2700
Materials	540	700	810
Taxation	360	200	360
Profits	360	300	360
Administration	180	200	270

13. Calculate the arithmetic mean for the following data:

x	35	40	45	50	55	60
f	12	18	24	16	6	4

14. Calculate Quartile Deviation and its coefficient for the following data:

x	22	25	20	18	30	36	24
f	4	7	6	3	5	2	10

15. Calculate Coefficient of Rank Correlation from the following data:

Marks in Science	40	46	54	60	70	80	82	85	85	90	95
Marks in Maths	45	45	50	43	40	75	55	72	65	42	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. Construct cost of living index number for the following data

COMMODITY	Base year price	Current Year Price	Weight
A	30	47	4
B	8	12	2
C	14	18	3
D	22	15	2
E	25	30	1

18. The head of department has 4 jobs A,B,C, and D and 4 subordinates V,W,X, and Y. The number of hours each man would take to perform each job is as follows:-

	V	W	X	Y
A	41	72	39	52
B	22	29	49	65
C	27	39	60	51
D	45	50	48	52

How the jobs should be allocated to minimize the total time.

SECTION C

Answer any TWO questions

(2 X 20 = 40 Marks)

19.(a) From the following data find mean, median and mode. Verify the empirical relation.

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80	80 - 90
No. of students	6	9	7	5	10	15	20	13	12

(b) The mean of 150 items is 70. Later on it was discovered that two items were wrongly taken as 68 and 12 instead of 78 and 2. Find the correct mean. (15 +5)

20. (a) Calculate the four central moments for the following data.

x	0	1	2	3	4	5	6	7	8
f	1	8	28	56	70	56	28	8	1

(b) The mean of two samples of sizes 500 and 600 were respectively 186 and 175. The corresponding standard deviations were respectively 9 and 10. The variable studied was height in centimeters. Obtain the mean and variance of combined samples (10 +10)

21. (a) Calculate the Spearman's Rank Correlation coefficient between the series A and B given below:

Series A	57	59	62	63	64	65	55	58	57
Series B	113	117	126	126	130	129	111	116	112

(b) Using four yearly moving averages, calculate the trend values and short term fluctuation:

Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Production	464	515	518	467	502	540	557	571	586	612

(10 +10)

22. Obtain an optimal basic feasible solution to the following transportation problem.

RETAIL OUTLETS

Dist. Centre	A	B	C	D	Capacity
X	19	30	50	10	7
Y	70	30	40	60	9
Z	40	8	70	20	18
Required	5	8	7	14	

(20)
