

# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



**B.Sc. DEGREE EXAMINATION – COMMERCE**

**SECOND SEMESTER – NOVEMBER 2013**

**ST 2102 - BUSINESS STATISTICS**

Date : 06/11/2013

Dept. No.

Max. : 100 Marks

Time : 1:00 - 4:00

## SECTION A

**Answer ALL questions:**

**(10 x 2 = 20 marks)**

1. Explain the needs for Statistics?
2. Write a note on Misuse of Statistics.
3. What are the types of classification of data?
4. Explain any two types of diagram to represent the data.
5. What is G.M.? Give its merits, demerits
6. Calculate Range and coefficient of Range for the following data:  
61, 62, 63, 64, 65, 66, 67, 68
7. What are the various methods of studying Correlation?
8. What are regression equations?
9. State any three uses of Index numbers.
10. What are balanced and unbalanced assignment problems?

## SECTION B

**(5 X 8 = 40 Marks)**

**Answer any FIVE questions**

11. Explain the characteristics of statistics.
12. Draw a Percentage Bar Diagram for the following data:

<i>Expenditure</i>	<i>Company A</i>	<i>Company B</i>
Wages	250	300
Materials	220	270
Taxation	360	250
Profits	130	150
Administration	40	30

13. Calculate the Harmonic Mean for the following data:

<i>x</i>	10	12	14	16	18	20
<i>f</i>	5	18	20	10	6	1

14. For a distribution Bolwley's coefficient of skewness is 0.56,  $Q_1 = 16.4$  and Median = 24.2. What is the coefficient of Quartile Deviation?
15. Calculate the correlation coefficient from the following data of marks in Commerce and Economics:

<i>Marks in Commerce</i>	50	60	58	47	49	33	65	43	46	68
<i>Marks in Economics</i>	18	17	19	21	20	23	22	25	27	26

16. The production of Tea in India is given as follows. Calculate the Four-yearly moving averages and also calculate short-term Fluctuations.

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Production (in tonnes)	464	515	518	467	502	540	557	571	586	612

17. An enquiry into the budgets of the middle class families in a city in India gave the following information:

Expenses on	Food 35%	Rent 15%	Clothing 20%	Fuel 10%	Misc 20%
Price in 2007	450	90	225	75	120
Price in 2008	435	90	195	69	135

Calculate cost of living index?

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

$$\text{Maximize } Z=3x+2y$$

Subject to the constraints,

$$2x + y \leq 40$$

$$x + y \leq 24$$

$$2x + 3y \leq 60$$

$$x, y \geq 0$$

### SECTION C

(2 X 20 = 40 Marks)

Answer any TWO questions

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

Marks	0-20	20 - 40	40-60	60-80	80-100
Frequency	3	17	27	20	9

(10)

19.(b) Calculate Bowley's coefficient of skewness from the following:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	10	25	20	15	10	35	25	10

(10)

20.(a) From the following data, find out which share is more stable in its value.

X	36	55	52	53	58	60	48	50	40	49
Y	108	107	105	105	102	108	104	103	107	101

(10)

20(b) Calculate the four moments about mean for the following data.

C.I	0 - 10	10 - 20	20 - 30	30 - 40
Frequency	1	3	4	2

(10)

21.(a) Calculate the Regression Equations of X on Y and Y on X from the following data and estimate X when Y = 26.

X	10	12	13	17	18	20	24	30
Y	5	6	7	9	13	15	20	21

(10)

21.(b) Fit a straight line trend equation by the method of least squares and estimate the trend values from the following data:

<i>Year</i>	2001	2002	2003	2004	2005	2006
<i>Value</i>	21	20	22	25	23	24

(10)

22. Solve the following transportation problem using (i) North West Corner method (ii) Vogel's Approximation method (VAM)

From		To				Supply
		P	Q	R	S	
I		21	16	25	13	11
II		17	18	14	23	13
III		32	27	18	41	19
Requirement		6	10	12	15	43

(10 + 10)

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