LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Com.DEGREE EXAMINATION – **COMMERCE& MATHEMATICS**

SECONDSEMESTER – APRIL 2018

ST 2102- BUSINESS STATISTICS

Date: 28-04-2018
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

SECTION A

Answer ALL questions.   **(10 x 2 = 20 Marks)**

1. Define classification.
2. Explain one-dimensional diagram to represent data.
3. Describe the primary and secondary methods of data collection.
4. Define sampling and state its principles.
5. What is weighted arithmetic mean?
6. Calculate arithmetic mean for the following data:47,36,48,68,45,46,60,65,40,66
7. Define measures of skewness.
8. What are the uses of time series?
9. Define feasible region.
10. State the merits of Index numbers.

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

Answer any FIVE questions.

11 Explain the scope of statistics in business studies.

12. Draw histogram and frequency polygon to present the following data :

Income(Rs.)	No. of employees	Income(Rs.)	No. of employees
4000-4499	21	6000-6499	62
4500-4999	32	6500-6999	43
5000-5499	52	7000-7499	18
5500-5999	105	7500-7999	9

13. From the following data find median.

Class Interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	8	12	18	8	6	5	4

14. Calculate Mean for the following data:

Age	12	13	15	16	10
No.of children	5	4	9	6	3

15. The first four moments of a distribution about the value 5 are 2, 20, 40 and 50. Obtain the mean, variance, β_1 and β_2.

16. Find the Rank Correlation coefficient from the following data:

Sl. No.	1	2	3	4	5	6	7	8	9	10
Ranks in Statistics	9	7	5	6	1	4	3	2	5	10
Ranks in Maths	8	6	7	5	4	3	2	1	10	9

17. Using four yearly moving averages determine the trend and short term fluctuations:

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Sugar Production	42	45	48	46	47	49	50	52	54	58

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

Group	Weights	Index number
Food	10	60
Fuel and light	13	75
Clothing	12	65
House rent	15	80
Miscellaneous	14	68

SECTION C   (2 X 20 = 40 Marks)

Answer any TWO questions

19. Calculate Karl Pearson'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	10	12	13	16	14	20	23	17

20.(a) Calculate the Coefficient of correlation from the following data.

Marks in Accountancy	90	75	63	95	71	75	31	24	40	76
Marks in Statistics	65	62	55	75	55	90	36	32	42	56

(b) Given below the information about advertising and sales

	Adv .Exp(X) (Rs. Lakhs)	Sales (Y) (Rs. Lakhs)
Mean	20	120
S.D	5	25

Correlation coefficient = 0.8

(i)   Obtain the two regression lines.

(ii) Find the likely sales when advertisement expenditure is Rs.25 lakhs .

(iii) What should be the advertisement expenditure if the company wants to attain sale target
     of Rs.150 lakhs?

(10+10)

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	10	60	15	70
B	12	65	14	75
C	10	70	13	85
D	15	75	16	90
E	10	65	12	70

22. Solve the following Transportation problem by using a) North West Corner Method
    b)Vogel's Approximation Method.

	A	B	C	D	Availability
X	6	1	9	3	70
Y	11	5	2	8	55
Z	10	12	4	7	90
Demand	85	35	50	45	