

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.Sc. DEGREE EXAMINATION – STATISTICS**

**FIRST SEMESTER – November 2009**

**ST 1502/ST 1500 - STATISTICAL METHODS**

Date & Time: 10/11/2009 / 1:00 - 4:00

Dept. No.

Max. : 100 Marks

**PART – A**

**Answer ALL the Questions**

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

1. Define Statistics.
2. State any two limitations of statistics.
3. What is the need for measure of central tendency?
4. Define skewness.
5. Give any two examples of curve fitting.
6. What do you understand by “Principle of least squares”?
7. State any two properties of correlation coefficient.
8. Why there are two regression lines?
9. Name the different types of association of attributes.
10. What is the advantage of Yule’s coefficient of association?

**PART – B**

**Answer any FIVE Questions**

**(5 x 8 = 40 marks)**

11. Explain the various types of classification and tabulation of data.
12. Calculate the median and mode.

Class	55-64	65-74	75-84	85-94	95-104	105-114	115-124	125-134	135-144
Frequency	1	2	9	22	33	22	8	2	1

13. Calculate Bowley’s coefficient of skewness.

<u>SALES</u>	<u>NUMBER OF FIRM’S</u>
Less than 20	30
Less than 30	225
Less than 40	465
Less than 50	580
Less than 60	634
Less than 70	644
Less than 80	650
Less than 90	665
Less than 100	680

14. Fit the straight line trend by the method of least squares and tabulate the trend:

Year:	1999	2000	2001	2002	2003	2004	2005
Production:	40	45	46	42	47	50	46

15. Calculate the correlation coefficient for the following data:

X: 17 19 21 26 20 28 26 27

Y: 23 27 35 26 27 25 30 33

16. From the following data, find the two lines of regression:

Age of Husband: 25 22 28 26 35 20 22 40 20 18

Age of Wife: 18 15 20 17 22 14 16 21 15 14

Hence estimate (i) The age of husband when wife's age is 19

(ii) The age of wife when husband's age is 30.

17. 1800 candidates appeared for an examination. 450 was successful. 340 had attended a coaching class and out of these 200 came out successful.

Estimate the utility of coaching class.

18. The equations of the two regression lines are  $2x + 3y = 7$  and  $5x + 4y = 9$ .

Find (i) mean of x and mean of y.

(ii) regression coefficients.

(iii) correlation coefficient.

**PART – C**

Answer any TWO Questions

(2 x 20 = 40 marks)

19. Following are the marks obtained by two students A and B in a set of examinations:

A's mark: 44 80 76 48 52 72 68 56 60 64

B's mark: 48 75 54 60 63 69 72 51 57 56

If the consistency of performance is the criterion for awarding the prize, who should get the prize?

20. Calculate the first four moments and also  $\beta_1$  and  $\beta_2$  for the data:

X: 0 1 2 3 4 5 6 7 8

F: 5 10 15 20 25 20 15 10 5

21. a) Explain the different types of correlation.

b) Ten competitors in a beauty contest are ranked by three judges in the following order:

Judge I: 1 6 5 10 3 2 4 9 7 8

Judge II: 3 5 8 4 7 10 2 1 6 9

Judge III: 6 4 9 8 1 2 3 10 5 7

Using correlation coefficient, determine which pair of judges has the nearest approach to common taste in beauty contest.

22. Write a short note on the following:

i) Graphical representation.

ii) Skewness and Kurtosis.

iii) Coefficient of Colligation.

