LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – STATISTICS

FIRST SEMESTER – APRIL 2010

ST 1502/ST 1500 - STATISTICAL METHODS

Date & Time: 28/04/2010 / 9:00 - 12:00   Dept. No.   Max. : 100 Marks

PART – A

Answer ALL questions   **(10 x 2 = 20 marks)**

1. Define statistics.

2. What do you mean by tabulation?

3. Define dispersion.

4. State the various measures of skewness.

5. Write the normal equations to fit a straight line by the principle of least squares.

6. What is curve fitting?

7. State the properties of correlation.

8. Why are there two regression lines?

9. Is there any inconsistency in the data given below: N= 12,000, (A) = 600, (AB) = 400, (B) = 500

10. Define Independence of attributes.

PART – B

Answer any FIVE questions   **(5 x 8 = 40 marks)**

11. Write the scope and limitation of statistics.

12. Explain the various types of diagrams.

13. Calculate arithmetic mean and median for the data given below:

Marks	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
No.of Students	6	5	15	13	5	4	2	2

14. A survey was conducted by a manufacturing company to enquire the maximum price at which persons would be willing to buy their product. The following table gives the stated price (in rupees) by persons.

Price (in Rs)	80-90	90-100	100-110	110-120	120 - 130
No.of persons	11	29	18	27	15

Calculate Karl Pearsons coefficient of skewness and interpret its value.

15. Fit a straight line trend by the method of least squares from the following data:

Year	1979	1980	1981	1982	1983	1984	1985
Sales in 100 units	100	105	109	96	102	108	112

16. Show that coefficient of correlation is independent of origin and scale.

17. From the marks obtained by 8 students in Accountancy and Statistics, Compute rank correlation coefficient.

Marks in Accountancy	60	15	20	28	12	40	80	20
Marks in Statistics	10	40	30	50	30	20	60	30

(P.T.O.)

18. The following information relates to literacy and unemployment in 500 persons. Find out Yule's coefficient of association between literacy and unemployment and its implication:

Illiterate unemployed →220
Literate employed → 40
Illiterate employed → 180

PART –C

Answer any TWO questions   **(2 x 20 = 40 marks)**

19. a) What are the various types of classification of data? Explain in detail.

b) The following data relate to the number of students admitted to first year class in different courses in a College. Show this data by means of sub-divided bar diagram.

Year	Arts	Science	Commerce
2005	600	400	200
2006	500	500	400
2007	500	600	400

20. a) Calculate coefficient of mean deviation from mean and coefficient of mean deviation from median from the following data:

Class	0-10	10-20	20-30	30-40	40-50
f:	6	14	22	6	4

b) From the prices of shares X and Y, given below, State which is more stable in value, by calculating coefficient of variation.

x:	55	54	52	53	55	58	52	50
y:	108	107	105	106	107	106	104	103

21. a) Fit the curve $y = a + bx + cx^2$ using the principle of least squares.

b) Find the missing frequencies from the following data:

(A) = 400,   (AB) = 250,   (B) = 500, N = 1200

22. a) Distinguish between correlation and regression.

b) The lines of regression of a bivariate population are $8x – 10y + 66 = 0$ and $40x – 18y = 214$
The Variance of X is 9. Find
  (i)   the mean values of x and y
  (ii)   Correlation coefficient between x and y.
  (iii)   Standard deviation of y.

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