

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – STATISTICS
FIRST SEMESTER – NOVEMBER 2019
UST 1501 – STATISTICAL METHODS

Date: 30-10-2019
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

Section – A

Answer ALL questions

(10 X 2 = 20)

1. Define Statistics.
2. State the various types of classification.
3. Find the harmonic mean to the given data:
100,200,300,400
4. Define range and co-efficient of range.
5. Write down the normal equations for fitting an exponential curve.
6. What is principle of least squares?
7. Define rank correlation.
8. List out any two properties of regression co-efficient.
9. What are the different types of association?
10. For two attributes A and B , we have $(AB) = 35$; $(A) = 55$; $N = 100$ and $(B) = 65$. Find the missing values.

Section – B

Answer Any FIVE questions

(5 X 8 = 40)

11. Explain the various types of diagrams.
12. Draw the ogive curves and show the median in graph. Also check your result by actual calculation.
C.I : 0-10 10-20 20-30 30-40 40-50 50-60
f : 3 9 15 30 18 5
13. A panel of two judges P and O graded seven dramatic performances by independently awarding marks as follows:
Marks by P : 46 42 44 40 43 41 45
Marks by O : 40 38 36 35 39 37 41
Find out co-efficient of variation and interpret the result.
14. Fit a curve of the form $Y = a + bX$ to the following data:
X : 0 1 2 3 4 5 6
Y : 3 5 6.8 9.2 10.9 13.1 15
Also estimate Y when $X = 20$.
15. Calculate Spearman's Rank correlation for the following data.
X : 80 78 75 75 68 67 60 59
Y : 12 13 14 14 14 16 15 17

16. Two random variables have the regression with equations

$$3X + 2Y - 26 = 0$$

$$6X + Y - 31$$

Calculate i) Mean of X and Y

ii) If variance of X is 25, Find the SD of Y.

17. a) Define Kurtosis and explain its types.

b) State the various properties of correlation co-efficient.

18. Write down the characteristics of Yule's co-efficient of association.

Section – C

Answer Any TWO questions

(2 X 20 = 40)

19. a) Describe the various methods of collecting primary data stating their relative merits and demerits.

b) Draw the histogram of the data and hence find the modal value.

CI	: 0 - 100	100 – 200	200 – 300	300 – 400	400 - 500	500 – 600
f	: 13	18	27	20	17	6

20. a) Calculate Pearson's co-efficient of skewness for the following data:

Wages	: 10-15	15-20	20 -25	25-30	30-35	35 -40	40-45	45-50
No.of Workers:	8	16	30	45	62	32	15	6

b) Compute Quartile Deviation from the following data:

X	: 10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	: 12	19	5	10	9	6	6

21. a) Find the two regression lines for the following data.

X	: 22	23	23	24	26	27	27	28	30	30
Y	: 13	20	21	20	21	22	23	24	25	26

b) Explain the various types of correlation.

22. a) Fit a quadratic equation to nine pairs of values:

X	: 1	2	3	4	5	6	7	8	9
Y	: 2	6	7	8	10	11	11	10	9

b) According to the survey the following results were obtained:

	Boys	Girls
No. of students appeared at an examination	800	200
Married	150	50
Married and successful	70	20
Unmarried and successful	550	110

Find the association between marital status and the success in the examination both for boys and girls by using Yule's co-efficient of association.
