

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



U.G. DEGREE EXAMINATION – ALLIED

FIRST SEMESTER – APRIL 2023

16/17/18UST1AL01 – INTRODUCTION TO STATISTICS

Date: 12-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION – A

Answer ALL the questions

(10 X 2 = 20)

1. Distinguish between one dimensional and two dimensional diagrams.
2. Define Statistics.
3. Define frequency curve.
4. State the rules for diagrammatic presentation.
5. Find the median for the following data: 6, 18, 11, 19, 7, 20, 12, 16.
6. Define geometric mean.
7. Calculate standard deviation from the following observations on marks of 5 students of a tutorial group:

Marks out of 25

8	12	13	15	22
---	----	----	----	----

8. Write any two properties of regression coefficients.
9. Distinguish between correlation and regression.
10. What is meant by seasonal index?

SECTION – B

Answer any FIVE questions

(5 X 8 = 40)

11. During 2003-06 to 2009-12 the number of students in University 'X' was as follows: Represent the data by a suitable diagram.

Year	Arts	Science	Law
2003-06	22000	12000	7000
2006-09	26000	19000	9000
2009-12	30000	22500	11000

12. Explain different methods of sampling.
13. Compute the arithmetic mean and harmonic mean for the data given below:

Marks	0-5	6-10	11-15	16-20	21-25
No. of students	8	12	18	8	6

14. Coefficients of variation of two series are 60% and 80%. Their standard deviations are 24 and 20. What are their arithmetic means?

15. Calculate the Spearman's rank correlation between X and Y for the data given below:

X	15	18	30	27	25	23	30
Y	7	10	17	16	12	13	9

16. Given the following data, estimate the marks in Mathematics obtained by a student who has scored 60 marks in English, Mean marks in Mathematics = 80, Mean marks in English = 50, S.D of marks in Mathematics = 15, S.D of marks in English = 10 and Coefficient of Correlation = 0.4.

17. Explain briefly the components of time series analysis.

18. Calculate five yearly moving averages of the number of students studying in a college shown below:

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Students	332	317	357	392	402	405	410	417	405	431

SECTION – C

Answer any **TWO** questions

(2 X 20 = 40)

19. (i) Find the mean, median and mode from the following data: (10)

Class	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency	8	14	18	25	15	14	6

(ii) Construct a Histogram and Frequency polygon for the following frequency distribution: (10)

Marks	10-19	20-29	30-39	40-49	50-59	60-69	70-79
No. of students	2	3	10	18	15	5	6

20.(i) Explain the characteristics and limitations of statistics. (12)

(ii) What are the properties of a good measure of variation? (8)

21.(i) Find the regression coefficient of X on Y and Y on X for the following data: (10)

X	10	12	13	12	16	15
Y	40	38	43	45	37	43

(ii) Two judges X and Y in a beauty competition rank the 12 entries as follows: (10)

X	1	2	3	4	5	6	7	8	9	10	11	12
Y	12	9	6	10	3	5	4	7	8	2	11	1

What degree of agreement is there between the judgments of the two judges?

22. Calculate seasonal indices by the ratio to moving average method, from the following data:

Quarter	Wheat prices (in rupees per quintal)			
	1972	1973	1974	1975
I	75	86	90	100
II	60	65	72	78
III	54	63	66	72
IV	59	80	85	93

\$\$\$\$\$\$