LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

U.G. DEGREE EXAMINATION – **ALLIED**

SECOND SEMESTER – **APRIL 2023**

16/17/18UST2AL01 – BUSINESS STATISTICS - II

Date: 15-05-2023   Dept. No.   Max. : 100 Marks
Time: 09:00 AM - 12:00 NOON

SECTION A

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

1. Calculate mode for the following data: 3, 5,7, 5,9,7,5,7,6,3,9,5,6,6,3
2. Define arithmetic mean.
3. What is skewness?
4. State any two merits and demerits of dispersion.
5. What is correlation coefficient?
6. What are the regression lines?
7. What are the components of time series?
8. Fit a trend line to the following data by Graphic Method:

Year	1980	1981	1982	1983	1984	1985
Production(in units)	45	50	48	60	55	70

9. Define decision variables.
10. What is time series?

SECTION B

Answer any FIVE questions: **(5X8= 40 Marks)**

11. Calculate the mean, median and mode from the following data:

x	5	10	15	20	25	30
f	7	12	37	25	22	11

12. Describe the various measures of dispersion.

13. Calculate Bowley's Coefficient of Skewness:

Class Interval	55-58	58-61	61-64	64-67	67-70
Frequency	12	17	23	18	11

14. Find coefficient of correlation for the following.

Production (in tonnes)	1	3	5	8	9	10
Sales (in thousands)	3	4	8	10	12	11

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

Year:	1969	1970	1971	1972	1973	1974	1975	1976
Sales(in lakhs of rupees):	38	40	65	72	69	60	87	95

16. Explain the Methodology used in Operations Research.

17. Find the Mean and Variance of the combined sample from the following data:

Sample	Mean	Variance	Size
I	115	64	90
II	113	36	50
III	120	49	60

18. Explain the applications of game theory.

SECTION C

Answer any TWO questions: **(2 X 20=40)**

19. Calculate standard deviation for the following data.

Class	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-150
frequency	12	18	35	42	50	45	20	8

20. Using three yearly moving average determine the trend and short term fluctuations:

Year	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Production	21	22	23	25	24	22	25	26	27	26

21. Use the graphical method to solve the following LPP.

   Maximize $Z = 30 x + 20y$ Subject

   to constraints:

   $2 x + y \leq 800$
   $x + 2 y \leq 1000x$
   $, y \geq 0$

22. Solve the following transportation problem using Vogel's Approximation method.

	A	B	C	a_i
F_1	10	9	8	8
F_2	10	7	10	7
F_3	11	9	7	9
F_4	12	14	10	4
b_i	10	10	8	

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