

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – STATISTICS

SECOND SEMESTER – APRIL 2023

UST 2502 – APPLIED STATISTICS

Date: 03-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

PART-A

Answer ALL the questions:

(10x2=20)

1. Define Index number.
2. Give any two uses of Index numbers.
3. What is meant by T-scores?
4. Define Reliability.
5. Define Stationary population.
6. Give any two uses of Life Table.
7. Define Time Series.
8. What is Cyclical variation?
9. Define Demand and Supply.
10. Define Engels Law and Engels Curve.

PART-B

Answer any FIVE questions:

(5x8=40)

11. Construct Cost of Living Index number.

Groups	Food	Fuel	Clothing	Rent	Miscellaneous
Index number	352	220	230	160	190
Weight	48	10	8	12	15

12. Take a Five yearly period of moving average and determine short-term fluctuations from the following data.

Year	1979	1980	1981	1982	1983	1984
Production(1000's)	14	17	22	28	26	18
Year	1985	1986	1987	1988	1989	1990
Production(1000's)	20	24	25	29	30	23

13. Convert Fixed Base Index to Chain Base Index method.

Year	1991	1992	1993	1994	1995	1996
FBI	94	98	102	95	98	100

14. Fill in the blanks in a portion of life table given below:

Age(in years)	l_x	d_x	p_x	q_x	L_x	T_x	e^0_x
4	95000	500	?	?	?	4,850,300	?
5	?	400	?	?	?	?	?

15. Explain in detail about Gross Reproduction Rate and Net Reproduction Rate.
16. Illustrate in detail about Scaling Procedures.
17. Discuss Demand and Supply in detail with example.

18. Assuming that trend is absent determine if there is any seasonality in the data given below: What are the seasonal indices for various quarters, find out by the Method of Simple Averages?

Year	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
1985	3.7	4.1	3.3	3.5
1986	3.7	3.9	3.6	3.6
1987	4.0	4.1	3.3	3.1
1988	3.3	4.4	4.0	4.0

PART - C

Answer any TWO questions:

(2x20=40)

19. Construct the Index numbers of price from the following data by applying.

- (a) Laspeyre's Method (b) Paasche's Method (c) Bowley's Method (d) Fisher's Ideal Method
(e) Marshall-Edgeworth Method.

Commodity	1984		1985	
	Price	Quantity	Price	Quantity
A	04	08	08	06
B	10	10	12	05
C	08	14	10	10
D	04	19	04	13

20. Fit a Straight line trend for the following data by the Method of Least squares.

Year	1984	1985	1986	1987	1988	1989
Sales(Rs . Crores)	7	9	12	15	18	23

21. Compute the Crude and Standardized death rates of the two populations A and B regarding A as standard population from the table given below:

Age group(years)	A		B	
	Population	Death	Population	Death
Under 10	20,000	600	12,000	372
10-20	12,000	240	30,000	660
20-40	50,000	1250	62,000	1612
40-60	30,000	1050	15,000	525
Above 60	10,000	500	3,000	180

22. (i) Explain the Types of data required for Estimating Elasticities.
(ii) Explain Pareto's Law of Income distribution.
(iii) Explain Fertility rate and its types in detail.

(5+7+8)

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