LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **STATISTICS**

SECOND SEMESTER – **APRIL 2024**

UST 2502 – APPLIED STATISTICS

Date: 13-04-2024 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION – A

Answer **ALL** the questions **10 x 2 = 20 Marks**

1. What is circular test?
2. State the tests for a good index number.
3. Define radix.
4. Write a short note on normalized scores.
5. Provide four uses of vital statistics.
6. State the assumptions used in the construction of life tables.
7. Define Time series.
8. Write the normal equations for fitting a parabolic curve.
9. Define price elasticity of demand.
10. Define reliability.

SECTION – B

Answer any **FOUR** questions **4 x 10 = 40 Marks**

11. Explain the methods of measuring trend in time series.
12. Explain various methods of scaling scores.
13. Narrate base shifting, splicing and deflating of index numbers.
14. Explain Pigou's method (From Time series data) of estimating demand function.
15. Fit a straight line $y = a + bx$ to the following data by the method of least squares and find the trend values.

Year	2010	2011	2012	2013	2014
Sales	166	177	198	221	225

16. Explain in detail the five methods of determining test reliability.
17. Calculate the seasonal indices for the following data:

	Seasons			
Year	I	II	III	IV
2001	118	260	379	70
2002	85	185	407	8
2003	129	336	403	12
2004	283	360	472	14
2005	231	308	828	15

18. Explain Leontief's method (From Time series data) of estimating demand function.

SECTION – C

Answer any **TWO** questions **2 x 20 = 40 Marks**

19. Find price and quantity index numbers due to Laspeyre's, Paasche's, Marshall-Edgeworth, Fisher's method:

Commodity	2016		2017	
	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

20. Explain the following:

(i) Crude birth rate (ii) General fertility rate (iii) Total fertility rate
(iv) Gross reproduction rate (v) Net reproduction rate.

21. Find the T-scores corresponding to the test scores X for the following frequency distribution:

X	1	2	3	4	5	6	7
F	5	10	20	5	4	4	2

22. Complete the following life table:

Age (in years	'l(x)	'd(x)	'p(x)	'q(x)	L(x)	T(x)	$e_0(x)$
42	64711					1513333	
43	63787						
44	62821				62310		

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