



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

## B.Sc.DEGREE EXAMINATION –STATISTICS

FIFTH SEMESTER – APRIL 2019

### 16UST5MC03 / ST 5508– APPLIED STATISTICS

Date: 22-04-2019  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

#### Part – A

Answer ALL the Questions

10 x 2 = 20 marks

1. Define Chain base index method.
2. What do you mean by consumer price index number?
3. Define the index of reliability.
4. State any two scaling procedure used in psychology and education.
5. Mention the uses of studying vital statistics.
6. Define the term CDR.
7. Define Life Table.
8. Define Gompertz Curve.
9. What do you mean by seasonal variations?
10. State any two merits of ratio to moving average method.

#### Part – B

Answer any FIVE Questions

5 x 8 = 40 marks

11. Explain the concept of industrial production in India.
12. Discuss about parallel tests.
13. Explain about the methods of obtaining vital statistics.
14. Discuss the assumptions, descriptions and construction of life table.
15. Calculate the four yearly moving averages for the following data.

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003
Sales	36	43	43	34	44	54	34	24	14

16. Calculate the Laspyres, paasches and Fisher price index number for the following data.

Commodities	Base year Total value	Base year Quantity	Current year Total value	Current year Quantity
A	350	50	420	60
B	600	120	700	140
C	330	30	200	20
D	360	20	300	15
E	40	5	50	5

17. Describe Specific death rate and standardized death rate.

18. Calculate the seasonal indices for the following data.

Year	I Quarter	II Quarter	III Quarter	IV Quarter
2000	3.5	3.9	3.4	3.6
2001	3.5	4.1	3.7	4.0
2002	3.5	3.9	3.7	4.2
2003	4.0	4.6	3.8	4.5
2004	4.1	4.4	4.2	4.5

**Part – C**

**Answer any TWO Questions**

**2 x 20 = 40 marks**

19. The production of a commodity during 1993 to 1998 is given below. Fit the second degree parabola to these data and estimate the production for the year 2000.

Year	1993	1994	1995	1996	1997	1998
Production	10	12	13	15	18	20

20. a) Calculate Fisher’s Ideal Index Number and Show that it satisfies both Time Reversal Test and Factor Reversal Test.

	Year	A	B	C	D	E
Price	2015	8	2	1	2	1
	2016	20	6	2	5	5
Quantity	2015	50	15	20	10	40
	2016	60	10	25	8	30

b) Explain the fitting of straight line by the method of least squares.

21. Calculate the seasonal indices by the Link Relative Method for the following data.

Year	I Quarter	II Quarter	III Quarter	IV Quarter
2010	60	65	62	69
2011	62	68	65	68
2012	65	70	64	62
2013	70	75	68	67
2014	72	80	70	78

22. a) Explain the procedure of ratio to moving average method.

b) Discuss all the components of time series.

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