



K20U 0152

Reg. No. :

Name :

VI Semester B.Sc. Degree (CBCSS-Reg./Supple./Improv.) Examination,
April 2020

(2014 Admission Onwards)

CORE COURSE IN STATISTICS

6B11 STA : Time Series, Index Numbers and Vital Statistics

Time : 3 Hours

Max. Marks : 48

Instruction : Use of calculators and Statistical tables are permitted.

PART – A

(Short Answer)

Answer **all 6** questions.

(6×1=6)

1. Give two examples for seasonal variation in time series.
2. Define a multiplicative model of a time series.
3. Define price index number.
4. What do you mean by time reversal test ?
5. Define crude birth rate.
6. List any two situations in real life where vital statistics is involved.

PART – B

(Short Essay)

Answer **any 7** questions.

(7×2=14)

7. Describe a business cycle in time series.
8. Find the 4 yearly moving averages for the data set 24,32, 28, 43, 56, 43, 52, 65.

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9. Define Laspeyere's and Paasche's index numbers.
10. Why index numbers are called economic barometers ? Explain.
11. Describe age specific death rate.
12. Distinguish between absolute and relative rates vital statistics.
13. Define standardized fertility rate.
14. Explain the meaning of population projection.
15. Describe abridged life table.

PART – C

(Essay)

Answer any 4 questions.

(4×4=16)

16. What are the merits and demerits of ratio to moving average method ?
17. Describe the factor reversal test and verify whether Paasche's index number satisfies this test.
18. Explain the method of constructing cost of living index number.
19. Differentiate between direct and indirect standardization of vital rates.
20. Show that $nq_x = \frac{d_{x+n-1}}{l_x}$, in usual notations.
21. Describe the characteristics of complete life table.

PART – D
(Long Essay)

Answer any 2 questions.

(2×6=12)

22. Find the monthly seasonal variations using the method of monthly averages :

Months	Years		
	1990	1991	1992
January	12	13	16
February	11	18	14
March	10	16	15
April	15	11	15
May	16	14	16
June	14	15	11
July	17	14	12
August	12	16	15
September	15	17	14
October	18	18	13
November	13	15	12
December	12	13	11

23. Explain the merits and demerits of index numbers.
24. What are the sources of demographic data ? Explain.
25. Write short notes on :
 - a) Force of mortality
 - b) Makehams graduation formula.