

Reg. No. :

Name :

Sixth Semester B.Sc. Degree Examination, April 2022**First Degree Programme under CBCSS****Statistics****Core Course – X****ST 1642 – APPLIED STATISTICS****(2018 and 2019 Admission)**

Time : 3 Hours

Max. Marks : 80

SECTION – AAnswer **all** questions. Each question carries **1** mark.

1. Index numbers is a :
 - (a) measure of relative changes
 - (b) a special type of an average
 - (c) a percentage relative
 - (d) all the above
2. The price index as the arithmetic mean of Laspeyre's and Paasche's indices was expounded by
 - (a) Kelly
 - (b) Irving Fisher
 - (c) Drobish and Bowley
 - (d) Walsh

P.T.O.

3. If the index number is independent of the units measurements, then it satisfies :
- (a) time reversal test
 - (b) factor reversal test
 - (c) unit test
 - (d) all the above
4. Trend in a time series means
- (a) long-term regular movement
 - (b) short-term regular movement
 - (c) both (a) and (b)
 - (d) neither (a) nor (b)
5. The component of a time series which is attached to short-term fluctuations is :
- (a) seasonal variation
 - (b) cyclic variation
 - (c) irregular variation
 - (d) all the above
6. What is NSSO?
- (a) National Social Science Office
 - (b) National Social Study Office
 - (c) National Security Science Office
 - (d) National Sample Survey Office

7. For consumer price index, the price data should be collected from _____.
8. The CSO is headed by _____.
9. Given the trend equation $Y = 118.5 + 2.2X + 1.4 X^2$ with origin 2000 the trend equation with origin 2001 is _____.
10. Quarterly fluctuations observed in time series _____ represent variation.

(10 × 1 = 10 Marks)

SECTION – B

Answer **any eight** questions. Each question carries **2** marks.

11. What is NSO? What are its different wings?
12. Explain De-facto method.
13. What is a price relative?
14. What is splicing?
15. Give any two limitations of index numbers.
16. Explain briefly the concept of cost of living index number.
17. Explain the precautions that we have to take to fix 'base year' to calculate index number.
18. Explain the components of time series.
19. Illustrate the linear and non linear trend in time series.
20. Explain the mathematical models in time series.
21. What are the normal equations to fit a straight line $y = a + bx$.
22. What are the merits and demerits of semi average method?

23. How can we obtain the statistics of crop yields?
24. What is circular test?
25. Explain briefly the concept of whole sale price index number.
26. Define moving average.

(8 × 2 = 16 Marks)

SECTION – C

Answer **any six** questions. Each question carries **4** marks.

27. What are the main functions of NSSO?
28. What are the types of census enumeration?
29. Elucidate the uses and limitations of time series analysis.
30. What do you mean by 'Business cycle'? Explain.
31. What is method of least squares? What are normal equations of a straight line?
32. What is a time series? Explain with examples.
33. Give two examples each to
 - (a) Seasonal variation
 - (b) Irregular variation.
34. Explain briefly how the index numbers are used to measure the purchasing power of money?
35. Differentiate Laspeyre's from Paasche's index number. Among these which one is superior and why?
36. Distinguish between simple index number and weighted index number. Mention any two applications of weighted index number.

37. Explain and illustrate :

(a) Base shifting

(b) Deflating

38. Why index numbers are called economic barometers? Explain.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. Each question carries **15** marks.

39. Describe the steps involved in Ratio to moving average method of measuring seasonal indices.

40. Explain factor reversal test and time reversal test. Show that Fishers Ideal index number satisfies both these tests.

41. Explain the role of index numbers in the socio-economical analysis. What are the main factors to be cared while constructing an index number?

42. What you mean by Statistics of Labour and Employment. What are the methods used for national income estimation?

43. Below are given the figures of production (in thousand quintals) of a sugar factory:

| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|------------|------|------|------|------|------|------|------|
| Production | 80 | 90 | 92 | 83 | 94 | 99 | 92 |

(a) Fit a straight line trend to these figures.

(b) Plot these figures on a graph and show the trend line.

44. From the following data of wholesale prices of wheat for ten years construct index number taking

(a) 1998 as base and

(b) by chain base method

| Year | Price of Wheat | Year | Price of Wheat |
|------|----------------|------|----------------|
| 1998 | 50 | 2003 | 78 |
| 1999 | 60 | 2004 | 82 |
| 2000 | 62 | 2005 | 84 |
| 2001 | 65 | 2006 | 88 |
| 2002 | 70 | 2007 | 90 |

(2 × 15 = 30 Marks)
