

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2018
(Second Semester)

Branch - **STATISTICS**

TIME SERIES AND INDEX NUMBERS

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 x 2 = 20)

- 1 Define Time Series.
- 2 Write additive model of Time series.
- 3 Give the formula for Seasonal index for i^{th} month.
- 4 Write the different methods of finding seasonal index.
- 5 What is Index number.
- 6 Write price index formula of simple aggregate method.
- 7 What do you mean by cost of living Index number?
- 8 Give the criteria of good index number.
- 9 What is gross domestic product?
- 10 Write any two uses of national income estimates.

SECTION - B (25 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

- 11 a What do you mean by Secular trend. Name the different method of measuring it.

OR

- b Use five yearly moving averages for determining trend in the following time series data.

Year:	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coal production:	50	36	43	44	38	38	32	38	41

- 12 a Explain Cyclic Variations of time series.

OR

- b Explain Link relative method.

- 13 a ' Write the uses of index number.

OR

- b What is meant by chain base Index number. Write the steps involved in constructing chain indices.

- 14 a Compute price index number for the year 2005 with 2000 as a base year using (a) Laspeyre's Methods (b) Paasche's Methods.

Commodity	Quantity (units)		Price (Rs.)	
	2000	2005	2000	2005
A	100	150	5	6
B	80	100	4	5
C	60	72	2.5	5
D	30	33	12	9

OR

15 a Explain briefly about National income.

OR

b Discuss the computational difficulties of estimating National income.

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16 Below are given the figures of production (in thousand tones) of a fertilizer factory.

Year	:	2010	2011	2012	2013	2014	2015	2016
Production :		7788	94	85	91	98	90	

Fit a straight line by the method of least square.

17 The price (in Rs.per quintal) of a certain commodity during 2014 to 2017

Year	Quarter			
	I	II	III	IV
2014	321	348	348	348
2015	327	351	354	348
2016	342	359	381	345
2017	364	390	401	385

Compute the seasonal indices by the method of simple average.

18 Explain the problems involved in constructing index numbers.

19 Calculate Fisher's price index for the following data. Also verify that it satisfies Time reversal test and Factor reversal test.

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	6	50	10	60
B	2	100	2	120
C	4	60	6	60

20 Explain different methods for estimating National Income.

Z-Z-Z

END