

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2018
(Second Semester)

Branch- STATISTICS

TIME SERIES & INDEX NUMBERS

Time Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x2 = 20)

- 1 Write any two uses of time series.
- 2 What do you mean by centered moving averages?
- 3 State any two methods for calculating seasonal variation.
- 4 What do you mean by method of semi-averages?
- 5 Define quantity index.
- 6 What is simple aggregate method in unweighted index number?
- 7 State the formula for finding Paasche's index numbers.
- 8 How to construct fixed base index from chain base index?
- 9 Define national income.
- 10 State any two estimation methods of national income.

SECTION - B (25 Marks)

Answer ALL Questions

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

11. a Describe additive and multiplicative model of time series.
OR
b Determine trend by using 3-year moving averages and short term fluctuations.
- | | | | | | | | | | | |
|-------------|------|------|------|------|------|------|------|------|------|------|
| Year: | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
| Production: | 21 | 22 | 23 | 25 | 24 | 22 | 25 | 26 | 27 | 26 |

- 12 a Explain the procedure of finding seasonal indices by ratio-to-trend method.
OR

- b Explain residual method of measuring cyclical fluctuations.

- 13 a Discuss the uses of index numbers.
OR

- b Construct index for you 1995 taking 1994 as base by averages of relative method using arithmetic mean.

Commodities:	A	B	C	D	E
Prices in '94:	100	80	160	220	40
Prices in '95 :	140	120	180	240	40

- 14 a Describe the problems involved in the construction of index numbers.
OR

- b Construct cost of living index number from the table given below:

Commodities:	1	2	3	4	5
Index for 1985 :	1100	430	440	300	550
Expenditure :	46	10	7	12	25

Cont

15 a Briefly explain the different estimation methods of National Income.

OR

b Explain the advantages of national income estimate.

SECTION - C (30 Marks!

Answer any THREE Questions

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

16 Fit a straight line trend by the method of least squares

Year:	1982	1983	1984	1985	1986	1987	1988
Sales:	110	115	130	140	145	160	180

17 Obtain seasonal indices by link relatives method.

		year			
		1995	1996	1997	1998
Quarter\	I	75	86	90	100
	II	60	65	72	78
	III	54	63	66	72
	IV	59	80	85	93

18 Explain in detail about whole sale price index numbers and its uses.

19 Compute Laspeyres's, Paasche's and Fishers ideal index for the following data.

Commodity	1980		1985	
	P ₀	q ₀	P _i	q _i
A	15	15	22	12
B	20	5	27	4
C	4	10	7	5

20 Describe the computational difficulties in estimating national income.

Z-Z-Z

END