PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2019
(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 x 2 = 20)

1   Give any two uses of time series.
2   Define Linear Trend.
3   Define Seasonal indices.
4   What do you mean by cyclical fluctuations?
5   Give the formula for finding wholesale price index.
6   What is fixed base index number?
7   Write the formula for finding Kelly's index number.
8   Give any two tests for finding ideal index number.
9   Define national income.
10 What do you mean by gross domestic product?

SECTION - B (25 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks (5 x 5 = 25)

11 a   Explain additive and multiplicative decomposition models in time series data.

OR

   b   Explain method of moving averages of measuring trend.

12 a   Calculate seasonal indices for the following data:

Year	Q_1	Q_2	Q_3	Q_4 (Quarters)
1999	40.3	44.8	46	48
2000	50.1	53.1	55.3	59.5
2001	47.2	50.1	52.1	55.2
2002	55.4	59	61.6	65.3

OR

   b   Describe ratio to moving average method for finding seasonal indices.

13 a   Distinguish between Fixed and Chain base index numbers.

OR

   b   Write a brief note on Quantity and Value index numbers.

14 a   Given the data

Commodities		P_0	Q_0	P_1	Q_1
	A	1	10	2	5
	B	1	5	X	2

where p and q respectively are price and quantity for base and current years. Find X, if the ratio between Laspeyre's and Paache's index numbers is L:P=28:27.

OR

   b   Give a brief note about cost of living index.

15 a   Explain in detail about National Income.

OR

   b   Discuss the uses of National Income estimate.

SECTION - C (30 Marks)
Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16　Fit the straight line trend by the method of least squares and obtain tend values.

Year	2010	2011	2012	2013	2014	2015	2016
Values	77	88	94	85	91	98	90

17　Explain variate difference method to estimate variance of random component in time series data.

18　Explain in detail about unweighted and weighted index numbers.

19　Show that fisher's ideal index number satisfies time and factor reversal tests.

Commodities	Base Year		Current Year	
	P_0	Q_0	P_1	Q_1
A	6	50	10	56
B	2	100	2	120
C	4	60	6	61
D	8.5	30	12	24
E	8	40	16	22

20　Elaborate on estimation methods of National Income.

Z-Z-Z　　　　　　　　　　END