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RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES
DEPARTMENT OF PHYSICAL SCIENCES

B.Sc. (General) Degree in Applied Sciences
Third Year – Semester II Examination – April/May 2016

MAT 3204 – Index Numbers

Answer **Four** questions only Time allowed: **2 hours**

Calculators will be provided

1.

i. Discuss the differences between chain base method and fixed based method.

ii. From the following data calculate price index numbers using fixed base method by taking 2006 as base year.

Year	2005	2006	2007	2008	2009	2010	2011
Price	20	22	23	25	30	32	35

iii. Using the fixed base indices obtained in part (ii), construct a new index number series in which the base is shifted to 2008.

iv. From the following data calculate price index numbers using chain base method.

Year	1995	1996	1997	1998	1999	2000
Price	120	130	135	140	146	150

v. Convert the following link relatives into price relatives taking year 2000 as base.

Year	**2000**	**2001**	**2002**	**2003**	**2004**
Link relatives	80	125	120	150	140

2.

i. State two limitations of simple aggregative method.

ii. Distinguish between Laspeyre's and Paasche's index numbers.

iii. . Calculate all weighted aggregative index numbers from the following data. (Laspeyre's , Paasche's , Dorbishbowley, Fisher's , Marshall edgeworth, Walsh)

Commodity	Base year		Current year	
	P_0	Q_0	P_1	Q_1
Bread	3	10	4	8
Meat	15	20	20	15
Tea	25	2	30	3

3.

i. Briefly explain the following tests,

a) Time reversal test
b) Factor reversal test
c) Circular test

ii. Does Fisher's Ideal index satisfy Circular test? Justify your answer.

iii. Compute Fisher's Ideal index number from the data given below and show that it satisfies the Time reversal test and the Factor reversal test.

Item	Base year		Current year	
	Q_0	P_0	Q_1	P_1
A	12	10	15	12
B	15	7	20	5
C	24	5	20	9
D	5	16	5	14

4.

i. What is a cost of living index number? What does it measure?

ii. Discuss briefly the uses and limitations of the cost of living indices.

iii. Calculate the index number using both Aggregate Expenditure method and Family Budget method for the year 1993 with 1980 as base year for the following data.

Commodity	Quantity in units In 1980	Price per unit in 1980(Rs.)	Price per unit in 1993(Rs.)
A	100	8.00	12.00
B	25	6.00	7.50
C	10	5.00	5.25
D	20	48.00	52.00
E	25	15.00	16.50
F	30	9.00	27.00

5.

i. Explain the term "Splicing".

ii. The following two series of index numbers, index number (A) with year 1998 as base and index number (B) with year 2004 as base are given below. Prepare splicing series of index numbers with base year 2004.

Year	Index number (A)	Year	Index number (B)
1998	100	2004	100
1999	110	2005	110
2000	100	2006	90
2001	130	2007	80
2002	150	2008	100
2003	170	2009	120
2004	200		