



RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. General Degree
Third Year – Semester II Examination – September/October 2013

MAT 3204 – Index Numbers

Answer all questions.

Time: 2 hours

1. (a). What is an index number?
- (b). Explain three main types of index numbers.
- (c). State five main uses of index numbers and describe two limitations of them.
- (d). The following table gives the price of wheat per kg in different years.

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Price (Rs.)	60	70	70	80	100	140	120	130	150

Calculate the following;

- i) Price relatives, taking 2007 as the base.
 - ii) Price relatives, taking averages of 2004, 2005, 2006 and 2008 as the base.
 - iii) Chain base index numbers.
 - iv) From the chain base index numbers obtained in part iii) construct the fixed base index numbers.
2. (a). Using relevant formulae, distinguish between aggregative type index numbers and average type index numbers.
 - (b). The following table gives the data of five commodities A, B, C, D and E for the years 2011 and 2012.

Commodity	2011		2012	
	Price (Rs.)	Value	Price (Rs.)	Value
A	10	100	12	144
B	12	144	14	196
C	14	196	16	256
D	16	256	18	324
E	18	324	20	400

Calculate the following;

- i. Price index by using
 - a. Simple aggregate method.
 - b. Simple average of price relative method for arithmetic mean.
- ii. Laspeyre's and Paasche's price indices.
- iii. Fisher's quantity index number.
- iv. Weighted average of price relative method by using geometric mean.
- v. Value index number.

3. (a). Briefly explain the following;

- i. Time reversal test
- ii. Factor reversal test
- iii. Circular test

(b). Show that Fisher's Ideal index number formula satisfies both time reversal and factor reversal tests. Does Fisher's Ideal index satisfy Circular test? Justify your answer.

(c). "It is stated that the Marshall- Edgeworth index number is a good approximation to the Ideal index number". Verify the above statement by using the following data.

Commodity	2000		2010	
	Price(Rs.)	Quantity	Price(Rs.)	Quantity
A	2	74	3	82
B	5	125	4	140
C	7	40	6	33

Also prove that Ideal index satisfies both the Time reversal and Factor reversal tests.

4. (a). What is a Cost of living index number? State three uses and limitations of it.

(b). Give a detailed account of the method of construction of a consumer price index by using the required formulae.

[P.T.O]

- (c). A worker in the city of California earns \$ 3500 per month. The cost of living index for a particular month is given as 136. Using the following data find out the amounts he spent on house rent and clothing.

Group	Expenditure (\$)	Group index
Food	1400	180
Clothing	?	150
House Rent	?	100
Fuel and lighting	560	110
Miscellaneous	630	80
