RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

Bachelor of Science in Applied Sciences
Third Year - Semester II Examination – Jan/Feb 2023

MAT 3204 – INDEX NUMBERS

Time: Two (02) hours

Answer **ALL** questions.

A non-programmable calculator is permitted.

1. a) i) Define the "Index Number".

    (4 marks)

    ii) What are the limitations of index numbers?

    (4 marks)

    b) i) Distinguish between simple aggregative method and weighted aggregative method.

    (5 marks)

    ii) Compute simple aggregative price index number from the following data:

Commodity	Rate Unit	Price (2000)	Price (2009)
Wheat	Per 10kg	100	140
Rice	Per 10kg	200	250
Pulses	Per 10kg	250	350
Sugar	Per kg	14	20
Oil	Per litre	40	50

    (6 marks)

c) Construct an index for 2014 using the following simple averages of price relative methods considering 2013 as the base year.

   i. **Arithmetic Mean**
  ii. **Geometric Mean**

Commodity	Price in 2013 (Rs.)	Price in 2014 (Rs.)
A	50	70
B	40	60
C	80	90
D	110	120
E	20	20

(6 marks)

2. a) Briefly explain the following tests:

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

(9 marks)

b) Compute Laspeyre's, Paasche's, Marshall-Edgeworth, Dorbish-Bowley, and Fisher's Index numbers for 2000 from the following data. Hence, show that Fisher's Index numbers satisfy time reversal test and factor reversal test.

Items	1995		2000	
	Price	Quantity	Price	Quantity
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

(16 marks)

3. a) Explain the differences between chain base method and fixed based method.

(5 marks)

b) From the following data calculate price index numbers using fixed base method by taking 1980 as the base year.

Year	1980	1981	1982	1983	1984	1985	1986	1987
Price	40	50	60	70	80	100	90	110

(5 marks)

c) Using the fixed base indices obtained in part b), construct a new index number series by taking 1984 as the base year.

(5 marks)

d) 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

(5 marks)

e) Convert the following link relatives into price relatives by taking year 2003 as base.

Year	2003	2004	2005	2006	2007	2008
Link Relative	80	120	150	140	125	200

(5 marks)

4. a) Explain the term "Splicing".

(5 marks)

b) What are the uses of Consumer Price Index (CPI) number?

(5 marks)

b) The following table shows two series of index numbers; index number (A) with year 1998 as the base and index number (B) with year 1993 as the base. Prepare a splicing series of index numbers from index B to index A.

Year	Index number (A)	Year	Index number (B)
1990	100		
1991	110		
1992	108		
1993	114	1993	100
		1994	108
		1995	116
		1996	112

(15 marks)

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