RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES, MIHINTALE

B.Sc. (General Degree)
Third Year - Semester II Examination –February / March 2019

MAT 3204 – INDEX NUMBERS

Time allowed: Two (2) hours

Answer **four questions** only.
Calculators will be provided.

1) Choose the correct answer for each of the following questions.

i) Index number is equal to:
   a) sum of price relatives
   b) average of the price relatives
   c) product of price relative
   d) none of the above

(02 marks)

ii) Price Index numbers measure the changes in:

   a) relative changes in prices of commodities between two periods
   b) physical quantity of goods produced
   c) single variable
   d) none of the above

(02 marks)

iii) Which test does not satisfy the Fisher's Ideal formula:

   a) Unit test
   b) Circular test
   c) Time reversal test
   d) none of the above

(02 marks)

iv) Index number for the base period is always taken as:

   a) 50
   b) 1
   c) 200
   d) 100

(02 marks)

v) When the product of Price Index and the Quantity Index is equal to the corresponding Value Index, then the test that holds is:

a) Unit test
b) Time reversal test
c) Factor reversal test
d) none of the above

(02 marks)

vi) Consider the following table;

Commodity	Base year		Current year	
	Price	Quantity	price	Quantity
X	L	10	2	5
Y	L	5	P	2

If the ratio between Laspeyre's Index number to Paasche's Index number is 28:27, then the value of P is equal to:

a) 7
b) 4
c) 3
d) 9

(08 marks)

vii) If the Consumer Price Index, food price Index and the other items price Index for April 1985 were 125, 120 and 135 respectively, then the percentage of the total weight of the index is:

a) 66.67
b) 68.28
c) 90.75
d) none of the above

(06 marks)

viii) In chain base method, the base period is:

a) Fixed
b) Not fixed
c) Constant
d) Zero

(02 marks)

ix) Consumer Price Index numbers are obtained by:

a) Laspeyre's formula
b) Fisher ideal formula
c) Marshall Edgeworth formula
d) Paasche's formula

(02 marks)

x) If all the values are not of equal importance, then the Index number is called:

a) Simple
b) Un-weighted
c) Weighted
d) none of the above

(02 marks)

xi) Purchasing power of money can be accessed through:
a) Simple Index
b) Fisher's Index
c) Consumer Price Index
d) Volume Index

(02 marks)

xii) The Chain Base Indices are not suitable for:
a) Long range comparisons
b) Short range comparisons
c) Percentages
d) Ratios

(02 marks)

xiii) If $\sum P_n q_n = 249$, $\sum P_0 q_0 = 150$, Paasche's Index number = 150, Drobiseh and Bowely's Index number = 145, then the Fisher's Ideal Index number is:
a) 75
b) 60
c) 145.97
d) none of the above

(08 marks)

xiv) Consumer Price Index number for the year 1967 was 313 considering 1950 as the base year. The average monthly wages of factory workers in 1967 was Rs.160.00. Factory workers' real wage is:
a) Rs. 48.40
b) Rs. 51.12
c) Rs. 40.30
d) none of the above

(06 marks)

xv) Price relatives computed by chain base method are known as:
a) Price relatives
b) Chain indices
c) Link relatives
d) none of the above (02 marks)

2) a. i) Define an "**Index number**". (05 marks)
ii) What are the limitations of Index numbers. (10 marks)

b. i) Distinguish between Simple Aggregative Method and Weighted Aggregative Method. (05 marks)

ii) Prepare Simple Aggregative Price Index number from the following data:

Commodity	Rate Unit	Price (1995)	Price (2004)
Wheat	Per 10 kg	100	140
Rice	Per 10 kg	200	250
Pulses	Per 10 kg	250	350
Sugar	Per kg	14	20
Oil	Per liter	40	50

(10 marks)

b. For the data given in the following table, construct an Index for 2014 by the simple average of price relative method, taking 2013 as base, using

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

(20 marks)

3) a. i) Discuss the differences between Chain Base Method and Fixed Base Method.
(10 marks)

ii) Using the data given in the table below, calculate **Chain Indices** and **Fixed Base Indices** considering 2000 as base:

Year	Price of Dhal (Rs. per kg.)
2000	20
2001	25
2002	30
2003	45
2004	63

(20 marks)

iii) Convert the following Fixed Base Index numbers into Chain Base Index numbers:

Year	Fixed Base Index
2002	376
2003	392
2004	408
2005	380
2006	392
2007	400

(20 marks)

4) a. Briefly explain the following tests:

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

(15 marks)

b. i) For the data in the table below, construct Fisher's Ideal Index using the Laspeyre's and Paasche's Index numbers:

Commodity	2006		2007	
	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

(25 marks)

ii) Prove from the above data that the Factor Reversal and Time Reversal tests satisfy Fisher's Ideal formula.

(10 marks)

5) a. i) Distinguish between Base Shifting and Splicing.

(05 marks)

ii) Shift the base of the following series to 1997:

Year	1995	1996	1997	1998	1999	2000
Index no.	125	155	185	220	265	320

(15 marks)

iii)Given below are the two Index number series, one with 1981 as the base and the other with 1989 as the base:

Series A:

Year	1981	1982	1983	1984	1985	1986	1987	1988	1989
Index No.	100	110	120	130	170	200	240	300	350

Series B:

Year	1989	1990	1991	1992
Index No.	100	125	160	190

Splice series A to series B (or series B forward)

(15 marks)

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

(05 marks)

ii) A Price Index number of two items A and B is estimated. If two items are assigned weights of 64 and 36 respectively, then the Price Index becomes 279. Similarly, if they are assigned weights 50 each, the Price Index turns out to be 265. Determine the individual Price Index numbers of items A and B.

(10 marks)

END