



SCOTT CHRISTIAN UNIVERSITY
SCHOOL OF PROFESSIONAL STUDIES
BIT111/BBA104/DBA102: BUSINESS MATHEMATICS - DAY
END OF SEMESTER EXAMINATION, APRIL 2016

TIME: 3 HOURS

LECTURER: JANE MAGEMBE

Answer QUESTION ONE and ANY OTHER TWO Question

QUESTION ONE – 30 MARKS

a) Define the following terms.

- i. Probability
- ii. Power set

(2 Marks)

(2 Marks)

- b) An economy of a small island is based on two sector economy Electricity and water. To produce 1 dollar watt of electricity by the electricity company it requires 0.3 dollar watt of electricity and 0.2 litres of water on the other hand to produce 1 litre of clean water, the water company requires 0.1 dollar watt of electricity and 0.4 litres of water. How much of electricity and water is consumed internally.

(4 Marks)

c) Find $|A|$

$$A = \begin{bmatrix} 3 & 1 & 2 \\ -1 & 2 & 4 \\ 3 & -2 & 1 \end{bmatrix}$$

(5 Marks)

d) Discuss two methods of data collection

(4 Marks)

- e) The following data relates to advertising expenditure in thousands and their corresponding sales

Advertising expenses	10	12	15	23	30
Sales	14	17	23	25	21

Estimate the sales corresponding to advertising expenditure of sh 10,000 and the advertising expenditure for a sales target of sh 24,000 by use of a diagram (9 Marks)

- f) Discuss two uses of index numbers (4 Marks)

QUESTION TWO-20 MARKS

- a) Compute index numbers from the data given below given that 1990 is the base year by the use of the following methods. Laspeyre's, paasache's, marshal-hedge worth and fishers methods.

	1990		1991	
Commodity	Price Sh	Quantity	Price sh	Quantity
A	8	80	10	110
B	10	90	12	108

(10Marks)

b) The table below shows the relationship between the height of a father and the son

Height of the son	6.0	5.5	6.5	4.0	5.5	6.3	5.3
Height of the father	6.5	5.5	6.0	7.0	7.5	6.8	6.4

Determine the degree of correlation and comment on the relationship (10 Marks)

QUESTION THREE -20 MARKS

A survey of 117 households was conducted at Rongai town to find out the number of households that watched television channels A, B and C respectively.

The results of the survey are as follows; those who watched,

$A=42$, $B=52$, $C=51$, $A \& B=26$, $A \& C=11$, $B \& C=17$, $AB \& C=5$

- Present the above information in a Venn diagram
- The number of households which watched only one channel
- The number of households that watched none of the three channels
- The number that watched A and B but not C (20 Marks)

QUESTION FOUR - 20 MARKS

Discuss the various steps followed when constructing a consumer price index (20 Marks)

ALL THE BEST