MURANGA UNIVERSITY COLLEGE

(A constituent College of Jomo Kenyatta University of Agriculture & Technology)

MAIN CAMPUS

MAIN EXAMINATIONUNIVERSITY EXAMINATIONS

2015/2016ACADEMIC YEAR

FIRST YEAR SEMESTER ONE EXAMINATIONS

FOR THE DIPLOMA IN CO-OPERATIVE MANAGEMENT

COURSE CODE: **BS1112**

COURSE TITLE: **QUANTITATIVE TECHNIQUES**

DATE: 15TH DECEMBER, 2015 **TIME: 2HOURS**

INSTRUCTIONS TO CANDIDATES

1) Question **one** is compulsory

2) Attempt any other **two** questions

QUESTION ONE:

a)The following table gives details of prices and quantities sold of two particular items in a department store over two years.

	2014		2015	
Item	Price	Number sold	Price	Number sold
	P_0	q_0	p_n	q_n
Product I	Rs. 438	37	Rs. 462	18
Product II	Rs. 322	26	Rs. 384	45

---

i)Find price and quantity relatives for 2015 (2014=100) for both items? (10 marks)

ii) Solve the following equations using Gauss Jordan method?

a) X1+b1X2+C1X3 = d1 (**4 marks)**

b) X_2+ C2X_3 = d_2 **(4marks)**

c) X_3 = d_3 **(4marks)**

iii) Assume that you have taken out an amortized loan for $10,000 to buy a new car. The yearly interest rate is 18% and you have agreed to pay off the loan in 4 years. What will be your monthly payment? **(8 marks)**

SECTION B

QUESTION TWO:

In a particular insurance life office, employees Smith, Jones, Williams and Brown have 'A' levels, with Smith and Brown also having a degree. Smith, Melville, Williams, Tyler, Moore and Knight are associate members of the Chartered Insurance Institute (ACII) with Tyler, and Moore having 'A' levels. Identifying set A as those employees With 'A' levels, set *C* as those employees who are ACII and set *D* as graduates:

a) Specify the elements of sets *A, C* and *D***.** **(4 marks)**

b) Draw a Venn diagram representing sets *A, C* and *D*, together with their known elements**.** **(4 marks)**

c) What special relationship exists between sets *A* and D? **(4 marks)**

d) Specify the elements of the following sets and for each set, state in words what information is being conveyed. (4marks)

i. AÇC ii. DÈC iii. DÇC

e) What would be a suitable universal set for this situation? (4marks)

QUESTION THREE:

a) What will be the value of Rs. 450 compounded at 12% for 3 years? (5 marks)

b) A company will have to spend Rs. 300,000 on new plant in two years from now.

Currently investment rates are at a nominal 10%.

i) What single sum should now be invested, if compounding is six-monthly?

(7marks)

ii) What is the APR? (8marks)

QUESTION FOUR:

An analysis of the monthly wages paid to workers in two firms A and B, belonging to the same industry, gives the following results:

	Firm A	Firm B
Number of workers	586	648
Average monthly wage	52.5	47.5
Standard deviation	10	11

In which firm, A or B, is there greater variability in individual wages? (10 marks)

c) Estimate an appropriate measure of dispersion for the following data:

Income (Rs.)	No. of persons
Less than 50	54
50 – 70	100
70 – 90	140
90 – 110	300
110 – 130	230
130- 150	125
150 and Above	51

(10 marks)