MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations 2015/2016

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF AGRIBUSINESS MANAGEMENT

FIRST SEMESTER EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN AGRIBUSINESS MANAGEMENT

KBT 316:   AGRICULTURAL MARKET AND PRICE ANALYSIS

Date: **Time:**

INSTRUCTIONS:

Answer ALL questions in section A and ANY TWO questions in section B

SECTION A: (COMPULSORY) 30 MARKS

QUESTION ONE

a)   Define the following terms
  i)   Arbitrage   (2 marks)
  ii) Notional farm-gate price   (2 marks)
  iii) Marketable surplus   (2 marks)

b)   Differentiate between
  i) Consumer surplus and producer surplus (2 marks).
  ii)   Nominal and real prices (2 marks)

c) Suppose the government of Kenya subsidized sugarcane farming inputs by 25% and at the same time consumer incomes in the country increased. With the aid of a diagram, discuss the effect this policy may have on the equilibrium price and quantity of sugar (8 marks).

d) Using a 13-year data for Kenya, an analyst produced the following results after running a demand equation for beef (not based on real data). The dependent variable was average price of beef (Ksh per ton), while the independent variables were as shown in the results.

Regression Statistics	
Multiple R	0.9792476
R Square	0.9589250
Standard Error	21857.941
Observations	13

ANOVA

	df	SS	MS	F	Significance F
Regression	5	78078892251	1.56E+10	32.68475	0.000104
Residual	7	3344387224	4.78E+08		
Total	12	81423279475			

	Coefficients	Standard Error	t Stat	P-value
Intercept	-295216.85	118113.01	-2.499	0.041
Chicken price (Ksh/ton)	-0.459	0.098	-4.679	0.002
GDP per capita (USD)	35.603	8.624	4.128	0.004
Maize price (Ksh/ton)	-0.074	0.017	-4.367	0.003
Beef quantity (tons)	0.755	0.772	0.978	0.361
Human population (thousands)	17.368	5.513	3.150	0.016

i)   Write the long-run demand equation for beef in Kenya.   (2 marks)

ii)   Explain the model results, stating whether the coefficients of the variables are consistent with economic theory.   (5 marks)

iii)   Predict the price of beef when the population of Kenya reaches 45 million, assuming the following values: GDP per capita (USD 1,500), Maize price (Ksh 38,000), Chicken price (Ksh 300,000) and quantity of beef produced (130,000)
                              (5 marks)

SECTION B: 40 MARKS

QUESTION TWO

a) With appropriate illustrations, discuss how demand elasticity determines the welfare effects a tax policy   (8 marks)

b) Using the cobweb model, show how prices for a commodity with a two-year production lag readjust to their long-run equilibrium following a negative demand shock.   (6 marks)

c) The following table shows hypothetical average bean price data from 10 markets in Kenya. Use it to answer the questions below.

Market	A	B	C	D	E	F	G	H	J	K
Price/Kg	60	45	42	39	40	58	43	40	44	41

  i) Find the mean price per kg   (3 marks)
  ii) Explain whether the mean accurately reflects the typical market price.   (1 mark)
  iii) Use an alternative statistic to express bean price in a typical market.   (2 marks)

QUESTION THREE

a) Describefour situations under which the market system may lead to inefficient outcomes.
                             (8 marks)

b) The following table shows the quantities and prices of market basket items in 2003, 2006 and 2012. Using the Laspeyres index:
  i) Calculate the consumer price index for 2007 and 2012.   (8 marks)
  ii) Calculate the inflation rates for 2003-2007 and 2007-2012 time periods. (2 marks)
  iii) State two possible reasons for the difference in the inflation rates.   (2 marks)

Item	Quantity per year			Price (Ksh)		
	2003	2007	2012	2003	2007	2012
Maize flour (kg)	120	110	105	24	19	43
Milk (litres)	300	250	220	49	57	86
Sugar (kg)	20	18	17	46	73	120
Meat (kg)	100	90	80	138	170	323
Cooking fat (kg)	36	32	26	102	141	133

QUESTION FOUR

a) Suppose the government imposes maximum price on DAP fertilizer in a bid to encourage fertilizer use and higher agricultural productivity. Using the market model, explain how this policy may affect fertilizer consumers and sellers and the general economy.   (10 marks)

b) You are provided with the following hypothetical supply curves for maize:
  $Q_t = -125 + 18.6P_t$ ……… (1)
  $Q_t = -25 + 2.3 P_{t-1}$ ……… (2)

Where Q_t is the quantity produced in current year (tons), P_{t-1} is previous year's price (Ksh).
  i)   Classify each of the two curves as either long-run or short-run supply curve.
                             (2 marks)
  ii)   Explain the difference in price coefficient of the two supply curves.   (2 marks)
  iii)   Given the long-run demand curve $P_t = 110 – 25Q_t$, calculate the long-run market clearing price and equilibrium quantity.   (6 marks)

QUESTION FIVE

a) Differentiate between positive demand shock and positive supply shock.　　　(2 marks)

b) Statetwo factors that may cause
　　i)　　Negative demand shock　　　　　　　　　　　　　　　　　　(2 marks)
　　ii)　　Negative supply shock.　　　　　　　　　　　　　　　　　　(2 marks)

c) The table below shows the price of cabbage and consumer price index (CPI) for five years between 2009 and 2014.

Year	2009	2011	2012	2013	2014
Nominal Price (Ksh/kg)	29.1	37.7	48.8	49	41.4
CPI (2009=100)	100	121.17	132.53	140.11	149.74

　　i)　Describe the trend in prices received by farmers between 2009 and 2014.　(2 marks)

　　ii)　Calculate the real prices for each year, using 2009 as the base year.　　(5 marks)

　　iii)　Change the base year to 2014 and re-calculate the real prices.　　　(5 marks)

　　iv)　Compare the trend in (i) to those of (ii) and (iii) above, and state whether cabbage

　　　　farmers were better off in 2014 than in 2009.　　　　　　　　　(2 marks)