MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRIBUSINESS MANAGEMENT AND TRADE

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRIBUSINESS MANAGEMENT AND TRADE

AGB 308: AGRICULTURAL MARKET AND PRICE ANALYSIS

DATE: 8/5/2019 **TIME: 8:30 – 10:30 AM**

INSTRUCTIONS: Answer **Question ONE** and **ANY TWO** other questions.

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Define the following terms

i) Marketable surplus (1 mark)

ii) Arbitrage (1 mark)

iii) Real prices (2 marks)

iv) Producer surplus (2 marks)

b) A farmer sold his 10 bags of maize at a grain market for KSh 2800 per 90kg bag after paying transport of KSh 2250, and market fees of KSh 500. What was the:

i) Transaction price (1 mark)

ii) Transaction cost (1 mark)

iii) Farm-gate price (1 mark)

c) The following table shows average milk price data from 10 markets in Kenya.

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

i) Find the mean price (1 mark)

ii) Explain whether the mean accurately reflects the market price (1 mark)

iii) Use an alternative statistic to express milk price in a typical market (2 marks)

d) Use the figures below to answer the questions that follow.

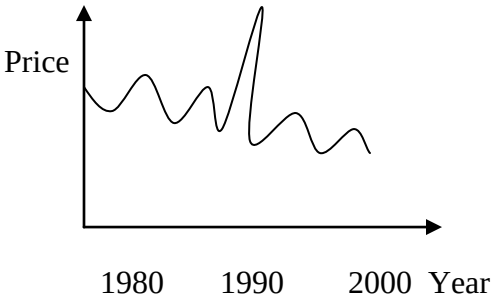

Figure A

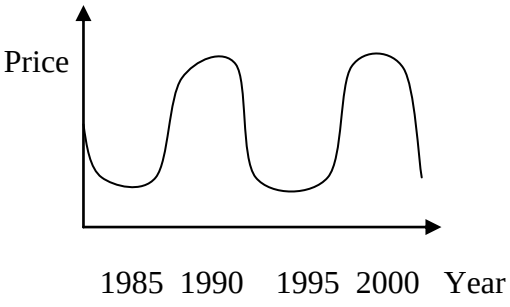

Figure B

For each of the figures:

i. Explain the price trend (4 marks)

ii. Highlight factors that may cause the trend (4 marks)

e) Suppose the government of Kenya subsidized poultry feeds by 75% and at the same time increased income tax by 50%. Using the market model, show the effect this policy may have on the equilibrium price and quantity of poultry meat (9 marks)

QUESTION TWO (20 MARKS)

a) Explain 8 reasons why the market system may fail (8 marks)

b) The table below shows quantities and prices of market basket items in 2005, 2011 and 2017.

Item	Quantity per year			Price (Ksh)		
	2005	2011	2017	2005	2011	2017
Maize flour (kg)	138	127	121	28	22	49
Milk (litres)	345	288	253	56	66	99
Sugar (kg)	23	21	20	53	84	138
Meat (kg)	115	104	92	159	196	371
Cooking fat (kg)	41	37	30	117	162	153

i) Calculate the consumer price index for 2011 using the Paasche Index (4 marks)

ii) Calculate the consumer price index for 2017 using the Laspeyres Index (4 marks)

iii) Calculate the inflation rates for 2005-20011 and 2011-2017 time periods (2 marks)

iv) State two possible reasons for the difference in the inflation rates (2 marks)

QUESTION THREE (20 MARKS)

a) You have two products: tea and coffee, and a fixed budget to spend on the two. With the aid of a diagram, show that product prices would determine your level of consumption of these products, assuming product markets are perfectly competitive (6 marks)

b) Using a 13-year data for Kenya, an analyst produced the following results after running a demand equation for pork (not based on real data). The dependent variable was average price of pork (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

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
GDP per capita (USD)	35.603	8.624	4.128	0.004
Beef price (Ksh/ton)	-0.459	0.098	-4.679	0.002
Human population (thousands)	17.368	5.513	3.150	0.016
Maize price (Ksh/ton)	-0.074	0.017	-4.367	0.003
Pork quantity (tons)	0.755	0.772	0.978	0.361

i) Write the long-run demand equation for pork in Kenya (3 marks)

ii) Explain the model results, stating whether the coefficients of the variables are consistent with economic theory (8 marks)

iii) Predict the price of pork when the population of Kenya reaches 55 million, assuming the following values: GDP per capita (USD 2,500), Maize price (Ksh 33,000/ton), Beef price (Ksh 420,000/ton) and quantity of pork produced (155,000 tons) (3 marks)

QUESTION FOUR (20 MARKS)

a) Using the cobweb model, explain how prices for a commodity with a two-year production lag readjust to their long-run equilibrium following a positive supply shock. (10 marks)

b) You are provided with the following hypothetical supply curves for wheat:

$Q_t = -250+37.2P_t$ …… (1)

$Q_t = -50+ 4.6\ P_{t-1}$ …… (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 $P_t=220 – 50\ Q_t$, calculate the long-run market clearing price and equilibrium quantity (6 marks)

QUESTION FIVE (20 MARKS)

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

b) The table below shows the price of beef and consumer price index (CPI) for five years between 2012 and 2016.

Year	2012	2013	2014	2015	2016
Nominal Price (Ksh/kg)	209.8	260.0	275.0	305.1	359.5
CPI (2009=100)	143.06	152.64	164.29	174.24	178.25

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

ii) Change the base year to 2016 and re-calculate the real prices (5 marks)

iii) Explain whether beef farmers were better off in 2016 than 2012 in real terms (2 marks)