MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRIBUSINESS MANAGEMENT AND TRADE

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN AGRIBUSINESS MANAGEMENT AND TRADE

AGB 308: AGRICULTURAL MARKET AND PRICE ANALYSIS

DATE: 24/7/2019 **TIME:11.00-1.00 PM**

INSTRUCTIONS;

Answer question ONE and any other TWO

QUESTION ONE (30 MARKS)

a) Define the following terms

i. Producer surplus (2 marks)

ii. Real prices (2 marks)

iii. Marketable surplus (2 marks)

iv. Arbitrage (2 marks)

b) A farmer sold his 20 bags of maize at a grain market for KSh 2500 per 90kg bag after paying total transport charges of KSh 3000, and total market fees of KSh 1000. What was the:

i. Transaction price (2 marks)

ii. Transaction cost (2 marks)

iii. Farm-gate price (2 marks)

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

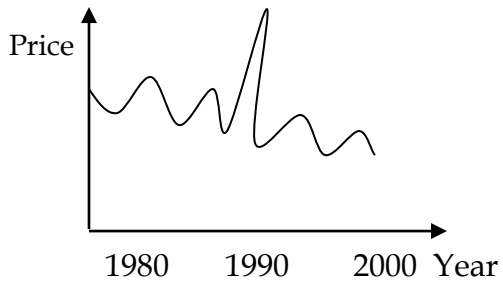

Figure A

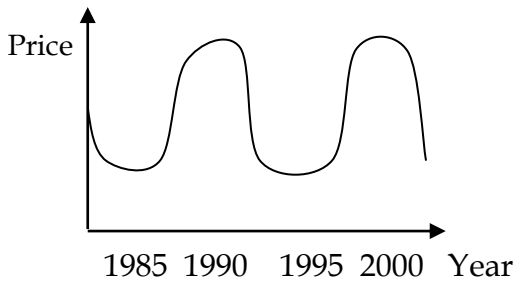

Figure B

For each of the figures:

i. Explain the price trend (4 marks)

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

d) Suppose the government of Kenya subsidized 75% of fertilizer price paid by maize farmers. Using the market model, show the effect this policy may have on the equilibrium price and quantity of maize (8 marks)

QUESTION TWO (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 THREE (20 MARKS)

a) Explain five reasons why the market system may fail (10 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

i. Calculate the consumer price index for 2011 using the Paasche Index (5 marks)

ii. Calculate the consumer price index for 2017 using the Laspeyres Index (5 marks)

QUESTION FOUR (20 MARKS)

a) 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	70	45	42	39	37	58	43	40	44	41

i. Find the mean price (2 marks)

ii. Compute the variance of the price (3 marks)

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

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

b) 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

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
Pork price (Ksh/ton)	-0.459	0.098	-4.679	0.002
Human population (thousands)	17.368	5.513	3.150	0.016
Beef quantity (tons)	0.755	0.772	0.978	0.361

i. Write the long-run demand equation for beef in Kenya (4 marks)

ii. Explain the model results (8 marks)

QUESTION FIVE (20 MARKS)

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

b) The table below shows the hypothetical price of chicken meat and consumer price index (CPI) for five years between 2014 and 2018.

Year	2014	2015	2016	2017	2018
Nominal Price (Ksh/kg)	209.8	260.0	275.0	305.1	359.5
CPI (2009=100)	164.29	174.24	178.25	184.21	191.47

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 the consumers were better off in 2018 than 2014 in real terms (2 marks)