DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY
UNIVERSITY EXAMINATION ACADEMIC YEAR 2014/2015
FIRST YEAR EXAMINATION FOR THE DEGREE OF MASTERS OF SCIENCE IN ECONOMICS

BEC 4104: ADVANCED MICROECONOMIC THEORY II

APRIL 2015 **TIME: 3 HOURS**

Instructions:
Answer QUESTION ONE and any other THREE questions.
All questions carry equal marks.

QUESTION ONE

a) Consider this hypothetical example; there are two types of used cars: plum and lemons. A plum is worth kshs. 3,000 to a buyer and kshs. 1,900 to a seller. On the other hand, a lemon is worth kshs. 1,000 to a buyer and kshs. 500 to the seller. The fraction of used cars that are plum is $\lambda_p = \frac{1}{4}$ and the fraction that is lemons is $\lambda_l = \frac{3}{4}$. Assume that all parties are risk neutral, and when buyers and sellers bargain, the agreed sale price is always the maximum that buyers are willing to pay.

i. What would be the price for plums and lemons if there were perfect information about used car quality? **(2 marks)**

ii. What would be the price of a used car if neither buyers nor seller knew whether a particular car was a plum or a lemon? **(2 marks)**

iii. Assume now that buyers cannot tell if a car is a plum or a lemon. Sellers know which type of car they own. What will be the market price for used cars? Explain. **(2 marks)**

iv. Now assume that there are many plums as lemons $(\lambda_p = 0.5)$. Continue to assume that buyers cannot tell if a car is a plum or a lemon. What will be the market price for used cars? Explain. **(2 marks)**

v. Continue to assume that $\lambda_p = 0.5$. The Akerlof Institute offers a new service. For price P, it will inspect any used car to determine whether it is a plum or a lemon. The inspection is 100% accurate. What is the maximum P* that owners of plum would be willing to pay to have their cars inspected? **(4 marks)**

vi. The Akerlof Institute decides to charge P*. How much will plums sell for? How much will lemons sell for? **(2 marks)**

b) Explain three reasons why markets for information are not developed like for other goods and services. **(6 marks).**

QUESTION TWO

c) Explain **any five** mechanisms that have been developed to overcome or minimize the effects of information asymmetry in different markets **(10 marks).**

d) Mr. Kamau is making arrangements to spend Kshs. 10,000 during the Easter holiday in Mombasa. The utility from this holiday is a function of how much the family spends (Y) where $U(Y) = \ln y$.

i. Assume that there is a 25% probability that the family will lose kshs. 1,000 during the holiday; compute the holiday's expected utility. **(2 marks)**

ii. Suppose that Mr. Kamau's family can purchase an insurance to cover against losing the kshs. 1,000 (by buying travelers checks) at an actuarially fair premium of kshs. 250. Demonstrate that the expected utility is higher with the purchase of this insurance than when the family faces the chance of losing the kshs. 1,000 without insurance. **(2 marks)**

iii. Calculate the maximum amount that Kamau's family would be willing to pay to insure the kshs. 1,000. **(2 marks)**

iv. Suppose that the family becomes more careless with their money so that the probability of losing the kshs. 1,000 rises to 30%. What is the actuarially fair insurance premium in this case? What economic concept does this situation relate to? Will Mr. Kamau's family buy this insurance? **(4 marks)**

QUESTION THREE

Consider the following Cournot model: Assume two identical firms 1 and 2 supplying a given product in the market. Assume further that there are no fixed costs and that the marginal cost per unit is constant at some level C. The inverse demand function of the market is given by:

$P = a - Q$ Where $Q = q_1 + q_2$

a) Required:

i. Solve for the equilibrium output for firm 1 and 2**.** **(6 marks)**
ii. Determine the Nash equilibrium of the game. **(1 mark)**
iii. Determine equilibrium market quantity. **(1 mark)**
iv. Calculate the equilibrium price of the market. **(1 mark)**
v. Calculate equilibrium profits for firm 1 **(2 marks)**
vi. What is the industry's profit? **(1 mark).**

b) Show that:

i. The oligopolistic joint output will be higher than the monopolistic output, but lower than the competitive output. **(5 marks)**

ii. The joint profit of the oligopolistic firms will be lower than the monopolistic profit, but higher than the competitive profits. **(3 marks)**

QUESTION FOUR

The domestic demand for portable radios is given by Q = 5,000 – 100P where price (P) is measured in $ and quantity is measured in thousands of radios per year. The domestic supply curve for radios is given by Q = 150P.

Required:

a) What is the domestic equilibrium in the portable radio market? **(2 marks)**

b) Suppose portable radios can be imported at a world price of $10 per radio. If trade were unencumbered, what would the new market price equilibrium be? How many portable radios would be imported? **(3 marks)**

c) If domestic portable radio producers succeeded in getting a 5$ tariff implemented, how would this change the market equilibrium? How much would be collected tariff revenue? How much consumer surplus would be transferred to domestic producers? What would the deadweight loss from the tariff be? **(7 marks)**

d) Graph your results in (c). **(3 marks)**

e) How would your results from part c be changed if government reached an agreement with foreign suppliers to "voluntary" limit the portable radios they export to 1,250,000 per year? Explain how this differs from the case of tariff. **(5 marks)**

QUESTION FIVE (20 MARKS)

a) Explain the concept of Prisoner's dilemma and use it to illustrate dominant strategy of a game **(10 marks)**

b) **Write short notes on the following:**

i. Moral hazard and adverse Market for lemons. **(5 marks)**

ii. Bertrand and Stackelberg quantity leadership models of oligopoly. **(5 marks)**