

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**P.O. Box 972-60200 – Meru-Kenya.**

**Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411**

**Fax: 064-30321**

**Website:** [**www.must.ac.ke**](http://www.must.ac.ke) **Email:** **info@must.ac.ke**

**University Examinations 2014/2015**

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF COMMERCE AND SECOND YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF PURCHASING AND SUPPLIES MANAGEMENT

**BEC 3200: INTERMEDIATE MICROECONOMIC THEORY**

**DATE: APRIL 2015 TIME: HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE**

1. Label each of the following statements **TRUE, FALSE OR UNCERTAIN** and justify your answer.
2. A consumer with convex, well-behaved indifference curves is indifferent between two bundles of X = (4,1) and Y = (2,9). She therefore prefers the bundle (3,6) to either of the first two. (3 Marks)
3. Kibet drinks 4 pints of Pilsner per day at a price of 30 Ksh/pint. When the price rises to 35Ksh/pint, his wife feels sorry for him and gives him an extra 20Ksh per day as a compensation. Kibet is exactly as well off as before. (3 Mark)
4. To produce a recorded CD, q = 1, a firm uses one blank disc, D = 1, and the services of a recording machine, M=1, for one hour. Draw an isoquant for this production process. Explain the reason for its shape. (4 Marks)
5. Meru University is considering renting space in the student center to one or two commercial textbook stores. The rent the college can charge per square foot of space depends on the profit (before rent) of the firms and hence on whether there is a monopoly or a duopoly. Which number of stores is better for the college in terms of rent? Which is better for students? Why? (4 Marks)
6. Suppose that Toyota and General Motors (GM) are considering entering a new market for electric automobiles and that their profits (in millions of dollars) from entering or staying out of the market are:

*GM*

If the firms make their decisions simultaneously, which firm(s) enter? (4 Marks)

1. Distinguish between the following concepts as used in microeconomic analysis;
2. Consumer Surplus and Producer Surplus (4 Marks)
3. Marginal Rate of Substitution and Marginal Rate of Technical Substitution.

(4 Marks)

1. A Cournot Oligopoly and a Bertrand Oligopoly (4 Marks)

**QUESTION TWO (20 MARKS)**

Toys –R-Us is in the toy making business. It has the production function



where is the amount of plastic used, is the amount of labor used, and *y* is the number of toys produced. The firm has fixed cost of 3. Let be the price per unit of plastic and be the wage per unit of labor.

1. Find the firm’s cost function. (4 Marks)
2. What are its marginal and average cost functions? (4 Marks)
3. Suppose the factor prices are () = (1, 1) and the market price of toys is p, what is the firm’s supply function? (4 Marks)
4. Suppose there are N identical firms similar to Toys-R-Us in the toy making industry, each with a similar production function and facing the same input prices. The market demand is D(p)= 90 – 10p. Find the competitive equilibrium in this industry. This involves finding:
5. The equilibrium output price p, (3 Marks)
6. The output of each firm and, (3 Marks)
7. The number of firms. (2 Marks)

**QUESTION THREE (20 MARKS)**

Levi Strauss and Wrangler are planning new generation jeans and must decide on the colors for their products. The possible colors are white, black, and violet. The payoff to each firm depends on the color it chooses and the color chosen by its rival, as the profit matrix shows:

 Levi Strauss

 Wrangler

1. Given that the firms move simultaneously, identify any dominant strategies in this game, and find any pure strategy Nash equilibria. (8 Marks)
2. Now suppose the firms move sequentially, with Wrangler moving first. Draw a game tree and identify any subgame perfect Nash equilibria in this sequential move game. (12 Marks)

**QUESTION FOUR (20 MARKS)**

After hoodwinking the Communications Authority of Kenya, StarTimes Television (STV) is the exclusive distributor of digital television content in Kenya. STV faces two demand curves from two types of consumers of television programming: = 80 – *p* form low income families and = 100-*p* from middle income families (high income families use the more exclusive DSTV service from Multichoice). and are the number of channels a customer can view and *p* is the price per channel. STV faces a constant average and marginal cost equal to 10/- per unit of digital programming it broadcasts (i.e per channel).

1. Suppose STV can perfectly identify both types of consumers (say by asking them for their bank account statements or looking at a secret government database) and is considering a two-part tariff: an access fee (the price of a decoder or set-top box) and a monthly fee for watching the channels. How much should it charge each type of consumer? For each type of consumer, find the decoder price (and ) , the price per channel (and ), the number of channels sold ( and ) (6 Marks)
2. Suppose STV cannot identify the consumer type (it’s illegal to look at people’s bank accounts) and it has to charge a single decoder price and per unit fee for channels, what price will it set for the decoder and what per unit fee will it charge? (6 Marks)
3. Having had a discussion with a Microeconomist recently graduated from MUST,STV have been advised that they could make more money by charging different per unit prices based on how much a customer purchases. Their marketing department has come up with innovative names for the number of channels: the *Nyota Bouquet*, the *Classic Bouquet* and the *Unique Bouquet*, with the number of channels on offer increasing as one moves from Nyota to Unique. In order to serve everyone, STV assumes that the market demand is that of the low income consumer, i.e. *q = 80 – p*. The firm’s profits are given by;

=+( +p3(-) -

where is the high price charged on the first channels (first block), is a lower price charged on the next - channels, is the lowest price charged on the remaining channels, is the total number of units actually purchased, and *m =* 10 is the firm’s constant marginal and average cost.

1. What is the profit maximizing and ? (6 Marks)
2. How many channels will a customer choosing the *Classic Bouquet* be able to view and what will be the monthly fee? (2 Marks)

**QUESTION FIVE (20 MARKS)**

Thirsty Ed drinks only pure spring water, but he can purchase it in two different- sized containers: 0.75 liter and 2 liter. Because the water itself is identical, he regards these two goods as perfect substitutes.

1. Assuming Ed’s utility depends only on the quantity of water consumed and that the containers themselves yield no utility, express this utility function in terms of quantities of 0.75L containers *(x*) and 2L containers (*y*). (4 Marks)
2. State Ed’s Marshallian (Walrashian) demand function for *x* in terms of prices of *x* and *y*, respectively, , , and his income *I*. (4 Marks)
3. Graph the demand curve for *x*, holding *I* and constant. (4 Marks)
4. How do changes in *I* and shift the demand curve for *x*? Consider the case where *I* increases and . (4 Marks)
5. Graph the Hicksian (compensated) demand curve for *x* when. (4 Marks)