SIMON FRASER UNIVERSITY

ECON 301E: Intermediate Microeconomics.

MIDTERM EXAM

Instructor: Alex Jameson Appiah

June 19, 1996.
Time: 100 mins.

Name: ----------

St. Number #----------

TA's Name/Tut ----------

Signature ----------

Instructions: The Examination consists of **two** parts. Students must attempt **all** questions in both parts.

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Question No.				
	PART I		PART II	
	Maximum Marks	Marks Obtained	Maximum Marks	Marks Obtained
1			**10**	
2			**10**	
3			**10**	
4			**10**	
5			**10**	
TOTAL	**50**		**50**	
				/100

Part II: Answer all five questions.

1. [10 pts.]
A consumer has the following utility functions:

$$U = Q_x + 8Q_y - Q_x^2 - Q_xQ_y - Q_y^2$$

The budget available to the consumer is \$95. The price of one unit of Q_x is \$10 and the price of one unit of Q_y is \$5.
(a). Write down the equation of the budget constraint.
(b). What are the values of Q_x and Q_y that maximizes the consumer's utility?
(c). What assumption(s) did you make in part (b)?

2. [10 pts.]
(a) Explain how the substitution effect and the income effect operate when the price of an inferior good rises (all else being equal).
(b) Explain why the demand curve for an inferior good can be negatively sloped, vertical or positively sloped.

3. [10 pts.] Given the following market demand schedule, find the own-price elasticity of demand
(a) for a movement from *B* to *D*.
(b) for a movement from *D* to *B*.
(c) at point *C*.

Point	Price ($)	Quantity
A	8	0
B	7	1,000
C	6	2,000
D	5	3,000
F	4	4,000
G	3	5,000
H	2	6,000
L	1	7,000
M	0	8,000

4. [10 pts.]
Given the following schedule for an individual's MU_x and MU_y , suppose that X and Y are the only two commodities available, and P_x = \$2 while P_y = \$1.

Q	MU_x	MU_y
1	16	11
2	14	10
3	12	9
4	10	8
5	8	7
6	6	6
7	4	5
8	2	4

(a). Find the quantities of X and Y that maximize the individual's utility.
(b). Show that at these quantities (from part **(a)**), the two conditions for consumer equilibrium are simultaneously satisfied.
(c). What is the overall utility received by the individual from his expenditures?

5. [10 pts.]
Let $Q = k_1 x_1^2 - k_2 x_1^3$ be a production function, where k_1 and k_2 depend on the fixed values of x_2.
(a) At what value of x_1 does the average product curve ($AP(x_1)$) reach a maximum?
(b). At what value of x_1 does the marginal product curve ($MP(x_1)$) reach a maximum?
(c). Show that the MP reaches its maximum at a smaller input level than AP.