

ECS 2601 Memorandum to May 2014 Examination

1a. Consider the following baskets of goods:

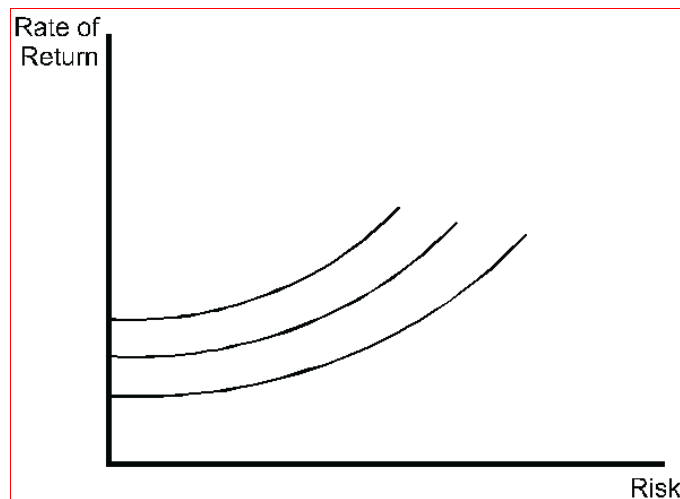
	FOOD	CLOTHING
A	8	3
B	4	5
C	5	8

If preferences satisfy all requirements, is A preferred to B or B to A? Explain your answer. (3 marks)

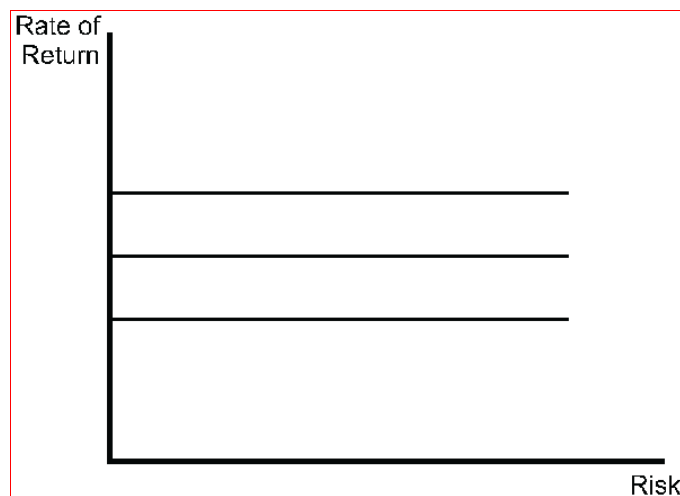
**A has more food than B.
While B has more clothing than A.
A and B cannot be compared without additional information.**

1b. In the field of financial management it has been observed that there is a trade-off between the rate of return that one earns on investments and the amount of risk that one must bear to earn that return.

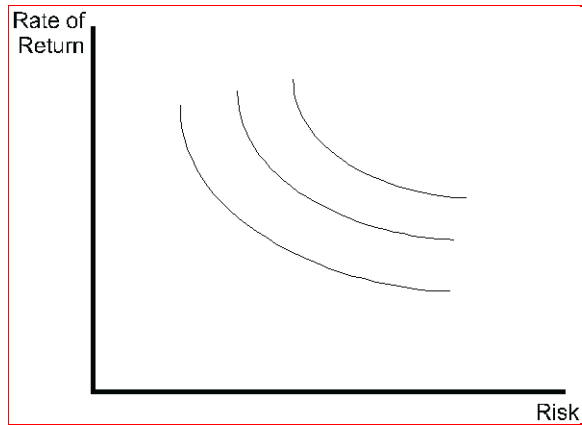
(i). Draw a set of indifference curves between risk and return for a person that is risk averse (a person that does not like risk). (2 marks)



(ii). Draw a set of indifference curves for a person that is risk neutral (a person that does not care about risk one way or the other). (2 marks)

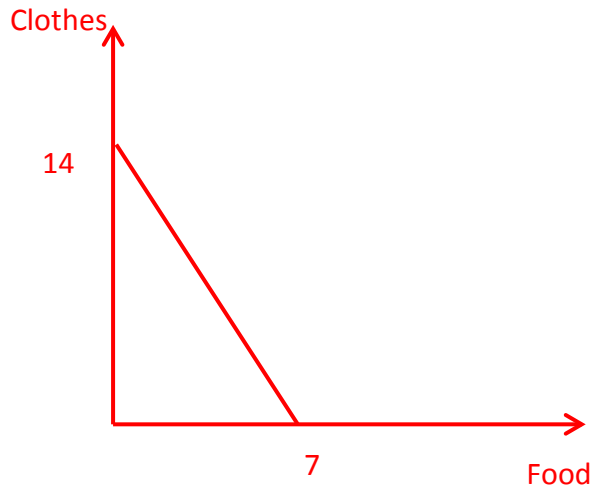


(iii). Draw a set of indifference curves for a person that likes risk. (2 marks)

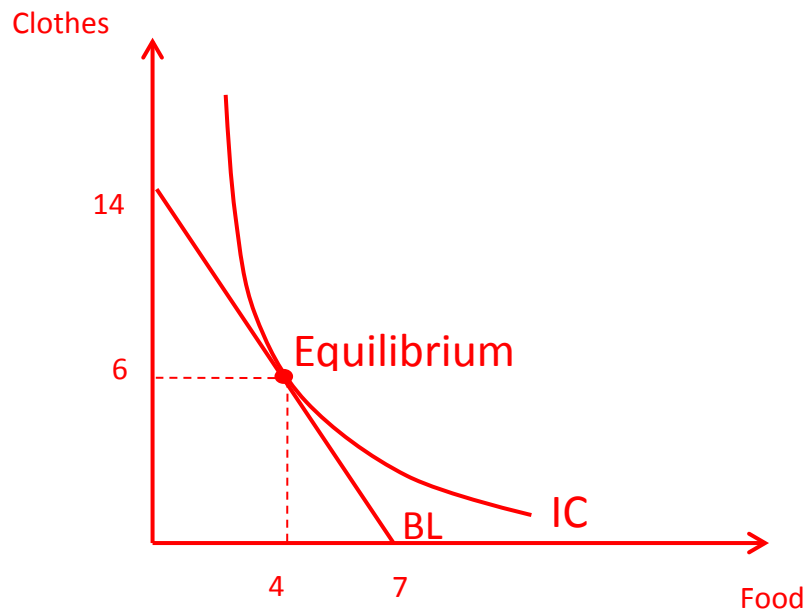


(1c) Lindiwe has a budget of R140. The price of food is R20 and the price of clothes is R10. She maximises her utility by buying 4 units of food and 6 units of clothes.

(i) Draw a budget line, with food on the horizontal axis. (2 marks)



(ii) Suppose an indifference map exists, show her equilibrium point on the diagram above. (2 marks)



(iii) Which condition must be satisfied to gain equilibrium? (2 marks)

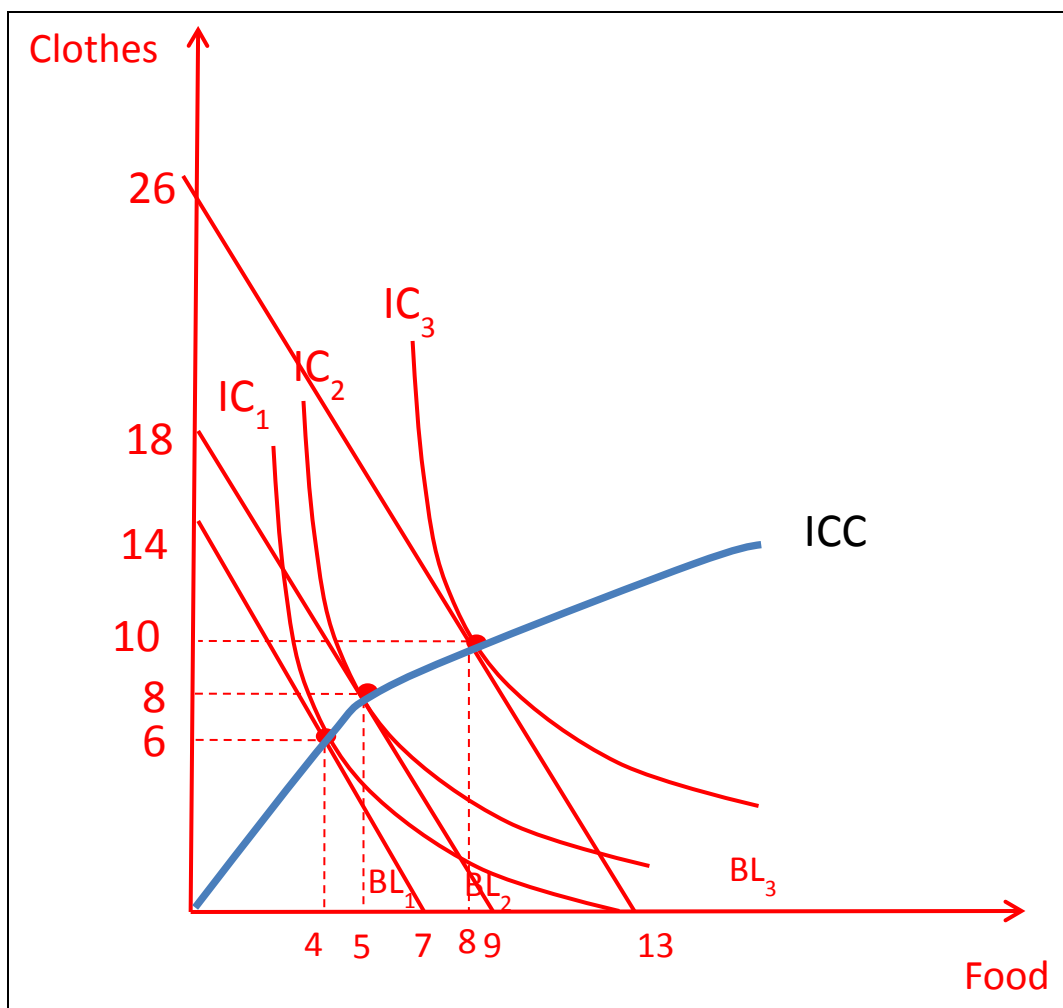
MRS = P_f / P_c

Or The slope of the IC = the slope of the budget line

Or The IC tangents to the budget line

Or MU_f / MU_c = P_f / P_c

(iv) When the income of Lindiwe increases to R180, she then maximise her utility by buying 5 units of food and 8 units of clothes. When the income increases to R260, she buys 8 units of food and 10 units of clothes. From the information given in (i) and (iii), draw an indifference curve map for Lindiwa indicating all equilibrium positions and also derive her income consumption curve. (5 marks)



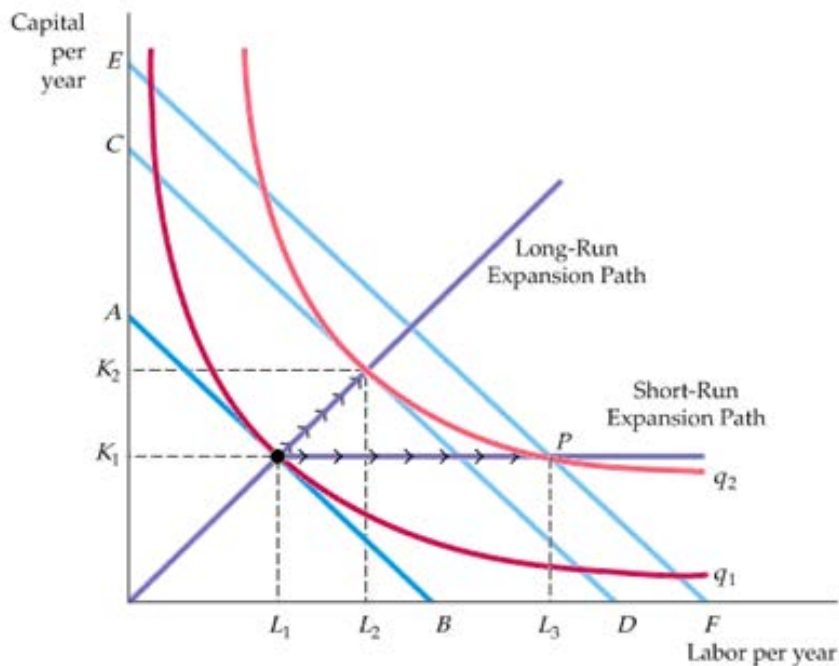
2a. For a producer that uses 6 units of labour at a wage rate of R20 000 per year and R400 000 worth of capital, work out the producer's total cost of production per year, given an interest rate of 12%. (4 marks)

TC = wL + rK

= R20 000 X 6 + R400 000 X 12%

= R168 000

b. Use an isoquant map with associated isocost curves to explain that when capital is allowed to vary (the long run), a producer can expand and attain a level of output that is the same as when capital is fixed (the short run), however, at a lower total cost. (6 marks)



When a firm operates in the short run, its cost of production may not be minimized because of inflexibility in the use of capital inputs.

Output is initially at level q_1 . In the short run, output q_2 can be produced only by increasing labor from L_1 to L_3 because capital is fixed at K_1 .

In the long run, the same output can be produced more cheaply by increasing labor from L_1 to L_2 and capital from K_1 to K_2 .

(c) A monopolist faces the following demand curve, marginal revenue curve, total cost curve and marginal cost curve for its product:

$$Q = 200 - 2P$$

$$MR = 100 - Q$$

$$TC = 10Q$$

$$MC = 10$$

(i) What is the profit maximising level of output?

(4)

Profit is max when the firm produce at output level where $MR = MC$

Find Q where $MR = MC$

$$100 - Q = 10$$

$$Q = 90$$

(ii) What is the profit maximising price?

(3)

$$Q = 200 - 2P$$

$$90 = 200 - 2p$$

$$2p = 110$$

$$P = 55$$

(iii) What is the total profit earned? (3)

$$\text{Profit} = \text{TR} - \text{TC}$$

$$\text{When firm produces 90 units, TR} = P \times Q = R55 \times 90 = 4950, \text{ while TC} = 10 \times 90 = 900 \quad (1)$$

$$= 4950 - 900$$

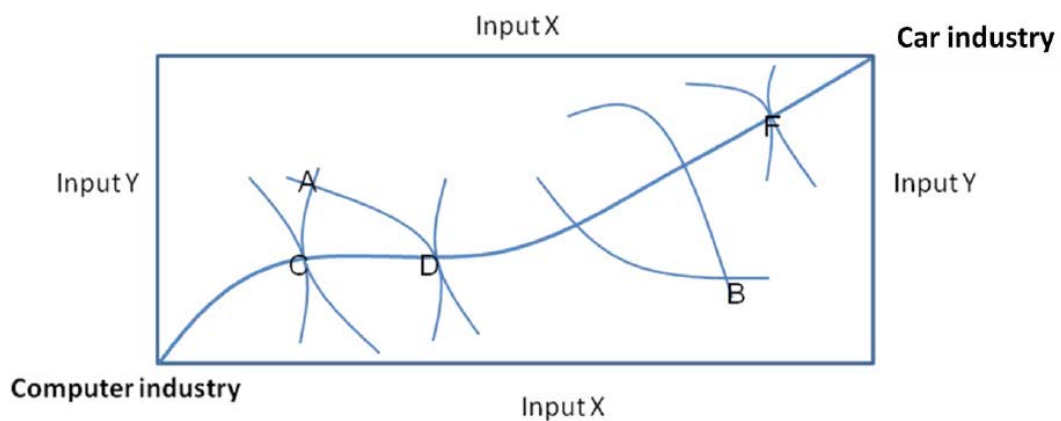
$$\text{Profit} = 4050$$

3a (i). Explain the *efficiency in production* of two industries (the car industry and the computer industry) with two inputs, X and Y. (2 marks)

Every producer's marginal rate of technical substitution between input X and Y are equal to their factor price ratio

$$\text{OR} \quad \text{MRTS} = P_x / P_y$$

Answer the following questions based on the Edgeworth box diagram below.



(ii) What is the line joining points C, D and F called? (2 marks)

Contract curve.

(iii) List any two points where production is inefficient. (2 marks)

A and B.

(iv) A movement from point A to point D will be to the benefit of which of the two industries? Explain your answer in no more than three sentences. (4)

It will benefit computer industry while car industry remains the same.

It is because this movement increase the output of computer industry by moving the isoquant outward / to a higher level of isoquant while the isoquant of car industry remains the same.

(v) At point C, which of the two industries is dominant? (2)

Car industry.

3b (i) The two leading South African manufacturers of high performance radial tires must set their advertising strategies for the coming year. Each firm has two strategies available: maintain current advertising or increase advertising by 15%. The strategies available to the two firms, G and B, are presented in the payoff matrix below.

		Firm B	
		Increase Adv.	Maintain Adv.
Firm G	Increase Adv.	27, 27	50, 12
	Maintain Adv.	12, 50	45, 45

The entries in the individual cells are profits measured in millions of rands. Firm G's outcome is listed before the comma, and Firm B's outcome is listed after the comma.

Which oligopoly model in the game theory is best suited for analyzing this decision? (2 marks)

The prisoner's dilemma model is most appropriate for analysing this situation.

B (ii) Carefully explain the strategy that should be used by each firm. Support your choice by including numbers. (6 marks)

Increasing the advertising level is the dominant strategy, since the firm is better off increasing regardless of the rival's action.

For example, if Firm B increases, Firm G earns 27 if it increases and 12 if it does not increase. G is better off increasing.

If Firm B doesn't increase, Firm G earns 45 by not increasing and 50 by increasing. Again, Firm G is better off to increase.

It is obvious that no matter what B does, G is better off to increase.

Firm B faces the same situation.