

2006 3E1 EXAM CRIB

Datasheet: None

1.

a) Define as precisely as you can

- i. The concept of a Nash Equilibrium [10%]
- ii. The concept of Pareto Efficiency [10%]

i) These definitions come straight from lectures. Let us first define the idea of best response. A strategy, x , is a best response for a player to an opposition strategy if, given that opposition strategy, the strategy x achieves at least as high a payoff as any other strategy that is available. Then we can say that a NE is a set of strategies, one for each player, such that each player's strategy is a best response to the other players' strategies.

ii) An allocation is PE if there exists no other feasible allocation in which at least one person would be better off and nobody else worse off. More formally, if we say that a resource allocation, X , is Pareto Superior to another resource allocation, Y , if every individual is at least as well off in X compared to Y , and at least one person is strictly better off in X , then we can say that an allocation is PE if there exists no other feasible allocation that is Pareto Superior to it.

b) For the game below determine:

- i. The Nash Equilibrium [15%]
- ii. The Pareto efficient allocations [15%]

		Player 2		
		L	C	R
Player 1	T	(-1, 2)	(0, 1)	(3, 2)
	M	(6, -2)	(4, 4)	(1, 3)
	B	(2, 2)	(0, 2)	(-2, 5)

i) The NE of the game are (T,R) and (M,C).

ii) The PE allocations are (M, L), (M, C) and (B, R).

Marks are awarded not only for correct answers but clear explanation.

iii) What is the likely outcome if player 2 is allowed to move first? [20%]

By backwards induction the likely outcome here is (M, C), which students might note is the Pareto efficient Nash equilibrium. Students may either present the backwards induction argument verbally, analysing how 1 will respond to each of 2's possible choices and then deducing what 2 should therefore do, or by drawing the extensive form for this game and indicating the backwards induction solution.

Extra credit could be awarded for highlighting the assumptions on which this solution is based (common knowledge of the rules of the game and 2 knowing that 1 is rational) and pointing out that for this game the solution is the same whichever player moves first.

c) Explain the concept of comparative advantage. [15%]

The theory of comparative advantage explains why it can be beneficial for two countries to trade, even though one of them may be able to produce every kind of item more cheaply than the other. What matters is not the absolute cost of production, but rather the ratio between how easily the two countries can produce different kinds of things. Better students will use a diagram to illustrate their answer and may note recent extensions to the model such as the Heckscher-Ohlin Theorem.

(d) Describe one policy that a country may use to increase its exports. [15%]

Candidates could describe, a depreciation/ devaluation of the exchange rate, subsidies or industrial policy. When discussing a depreciation/ devaluation candidates should consider that success of such a policy depends on firms'

pricing strategies; price elasticities of demand and sufficient capacity (supply elasticities).

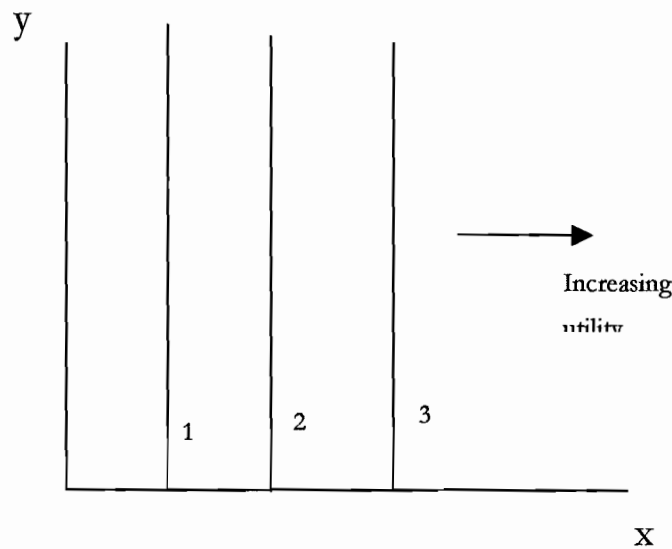
2.

a) Sketch the indifference curves associated with the following utility functions:

The point here is to work out the shape of the indifference curves associated with each utility function. i) is straight forward but ii) will need numbers to be plugged in. One obvious method is to focus on the indifference curve for utility level 1 (say) and find points on this indifference curve and so its shape. The key features are shown below.

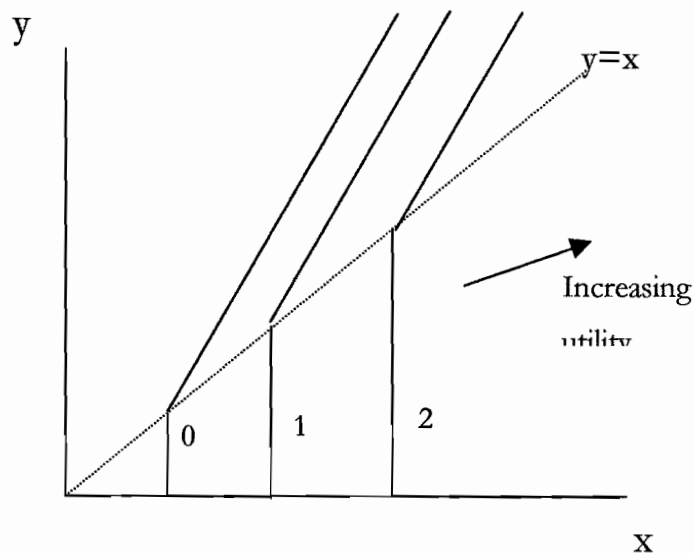
i) $U(x, y) = x$

[10%]



ii) $U(x, y) = x - \max(y - x, 0)$

[30%]



b) Explain the probable current consumption and saving behaviour of a student aged 21 if he or she was behaving according to that predicted by the life cycle hypothesis. [30%]

The life cycle hypothesis (LC) shows that although income varies over an individual's lifetime, individuals try to smooth their consumption, based on expected lifetime income. Students' actual income should be significantly less than their long-term income so according to the LCH they should spend more than current income and dis-save. Better candidates will consider the problems of uncertainty and liquidity constraints.

(c) Explain the impact of the following on the level of consumption:

(i) a temporary decrease in the rate of income tax; [15%]

According to the conventional Keynesian consumption function this will lead to an increase in consumption but according to normal income hypotheses (such as the LCH) this will have little impact on consumption as there will be little impact on long-run income. Better candidates will note the implications for fiscal policy

(ii) a fall in import prices. [15%]

This should stimulate consumption through both an income effect and a substitution effect. It will also lead to lower costs of production which may stimulate consumption if the cost savings are passed on to consumers in terms of prices. Candidates could consider the impact of low-price imports from SE Asia and Eastern Europe.

3.

a) What is the economic case against monopolies? [40%]

Begin by defining a monopoly. Then explain that the main economic case against monopolies is based on their being Pareto inefficient (extra credit for pointing out that monopolies are one type of market failure, linking to the first

fundamental welfare theorem). This can be analysed using a diagram that shows the deadweight loss of a monopoly, explaining that the source of the inefficiency lies in units not being traded for which the marginal cost of production is below consumers' willingness to pay. In contrast these would be traded under perfect competition. Extra credit could be given for briefly pointing out that inefficiency might not be the only thing we should consider – there may actually be benefits to monopolies in terms of generating profits that can fund innovation. Also for pointing out the difficulty associated with natural monopolies.

b) Explain the concept of a single European market. [20%]

The single European market is attempting to remove barriers to trade, including:

- Physical Barriers - customs formalities etc.
- Technical Barriers - standardising specifications; open public procurement; no state subsidies.
- Fiscal Barriers - tax harmonisation

It is an on-going process and there are particular problems in reducing fiscal barriers.

c) What are the potential advantages of the single European market? [20%]

The single European market should improve the efficiency of markets. Companies can sell their products anywhere in the member states and consumers can buy where they want with no penalty. Professional services such as banking, insurance, architecture and advertising can be offered in any member state. Workers of the member states can live and work in any other country and their professional qualifications should be recognised. Currencies and capital can flow freely between the member states improving the operation of financial markets.

The single Market seen as a “positive sum game” as it should enhance productivity throughout Europe. It should lead to more intensive competition, amore efficient allocation of resources and European businesses should be better able to exploit economies of scale by selling with a much larger single market.

- d) What are the potential advantages of single European currency?
[20%]

The microeconomic benefits of the single European currency (the EURO) are that it reduces the cost of trade and improves price transparency. This should lead to more efficient single European market. The macroeconomic benefits are that it should lead to lower and stable inflation and a lower ‘sacrifice ratio’ (the unemployment cost of reducing inflation). Candidates may not that many of these benefits have yet to me fully realised.

4.

- a) Two firms, A and B, producing an identical product have the following cost functions:

$$C_A = q_A^2$$

$$C_B = 2q_B^2$$

Where q_A is the output of firm A and q_B the output of firm B. The inverse demand function for their product is:

$$P = 150 - 2(q_A + q_B)$$

Where P is the market price.

- i) Determine the Cournot equilibrium output for each firm and the profits each firm makes in equilibrium. [40%]

Cournot outputs:

$$q_A = 20.45$$

$$q_B = 13.64$$

(Cournot price = 115.91)

Cournot profits:

$$\text{Firm A} = 1255$$

$$\text{Firm B} = 744$$

ii) Why is there likely to be an incentive for the two firms to collude?[25%]

A general result of these models is that the Cournot price is lower (more competitive) than the monopoly price. Therefore if the two firms could collude, they would restrict output and make higher (joint) profits than under Cournot. In other words, industry profit is not maximised under Cournot.

In this particular case both firms would produce under collusion (for extra credit one could actually calculate the collusive outcome) but since A's costs are smaller than B's, it is likely that the bulk of production would be by A.

Students should also point out that such cartels are generally unstable, since each firm will have an incentive to cheat by raising output (which one could illustrate using a prisoners dilemma game).

(b) What are the main sources of economic growth in the neoclassical exogenous growth model? [20%]

Growth in neoclassical exogenous model is explained by growth in the labour force; growth in physical capital; improvements in human capital; and

technology. At any moment the capital stock is a key determinant of the economy's output but the capital stock can change and this can lead to economic growth. If the savings rate is high the economy will have a large capital stock and a high level of output but if the saving rate is low, the economy will have a small capital stock and a low level of output.

Higher savings leads to faster growth - but only temporarily: an increase in the rate of saving raises growth until the economy reaches the new steady state. But only technology can explain a *persistent* increase in the growth rate.

(c) What policies can Governments implement to improve the rate of economic growth? [15%]

Governments can introduce policies to increase capital investment (eg R&D tax credits) and improve the stock of human capital (eg education). It can also create the right social and legal climate ('social capability'), improve infrastructure and implement the appropriate microeconomic policies (eg competition policy).