GX353

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

Summer Examinations 2000

Natural and Social Environment (EC 120) - Paper 2

1st B.A. (Economic and Social Studies)

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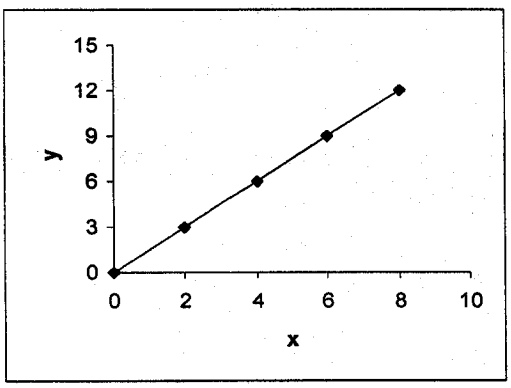
Time Allowed: THREE HOURS
Marks: 300

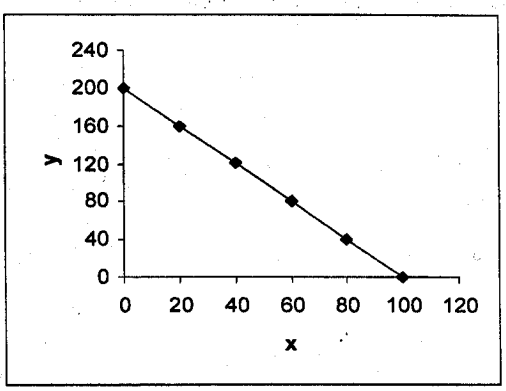
Instructions: This exam consists of three sections. All sections must be attempted. Please read the instructions for each section.

- **Section A (80 Marks):** Answer **BOTH** questions (worth 40 marks each)
- **Section B (180 Marks):** Answer **FOUR** questions (worth 45 marks each)
- **Section C (40 Marks):** Answer **ALL** multiple choice questions in this section

Section A

1. (a) Name two types of graphs used to show economic data.
   (b) Draw graphs to show the relationship between two variables that
   (i) move in the same direction
   (ii) move in opposite directions
   (iii) have a minimum
   (iv) have a maximum
   (c) Which of the relationships in (b) is a positive relationship and which is a negative relationship?
   (d) What is the definition of the slope of a curve?
   (e) Calculate the slope of the following two relationships.





2. The following table shows the number of houses completed in Ireland between 1991 and 1998

Year	Private	Local Authority	Total
1991	18,472	1,180	19,652
1992	20,982	1,482	22,464
1993	19,301	2,090	21,391
1994	23,588	3,275	26,863
1995	26,604	3,971	30,575
1996	30,132	3,593	33,725
1997	35,693	3,149	38,842
1998	39,093	3,256	42,349

a. Calculate the percentage change in the number of (i) private houses; and (ii) local authority houses completed between 1997 and 1998.
b. Of the total number of houses completed in 1997, what percentage were local authority houses?
c. Create an index for the total number of houses completed using 1991 as the base year (1991 = 100).
d. The table below shows two sets of index numbers. Amend the two sets to show a continuous index spanning 1990 – 1999 using 1994 as the base year (1994 = 100).

Year	Index 1	Index 2
1990	100	
1991	102	
1992	104	
1993	106	
1994	107	100
1995		104
1996		105
1997		109
1998		117
1999		114

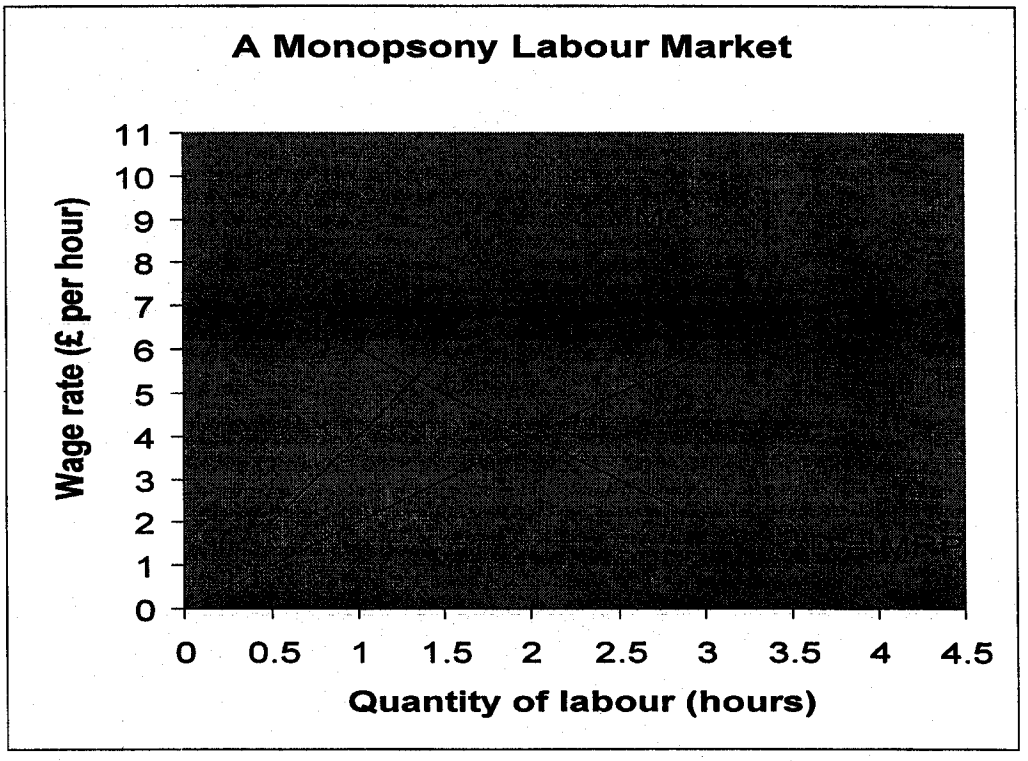
Section B

1. a. Explain the relationship between the demand curve for a factor of production and its marginal revenue product curve.

b. Illustrate and explain how the demand for labour is affected by
(i) an increase in the wage rate
(ii) a decrease in the firm's output price
(iii) an increase in the price of other factors
(iv) a technological change that increases the marginal product of labour.

2. a. Illustrate and explain (using demand and supply curves) why skilled workers are paid more than unskilled workers.

b. The diagram below represents a monopsony labour market.

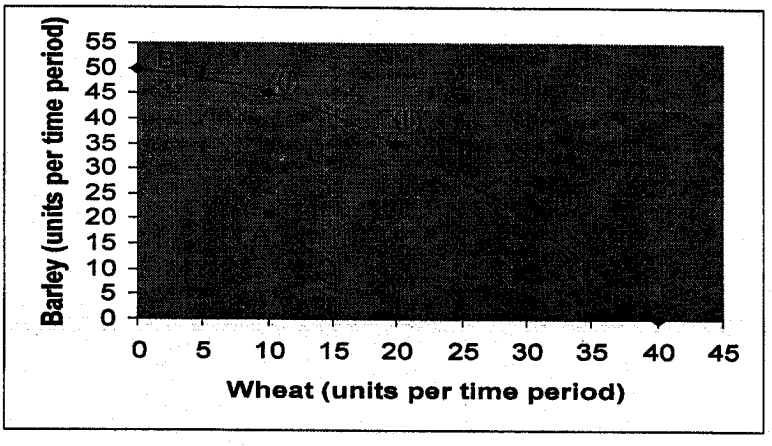


(i) Explain why the marginal cost of labour increases in a monopsony labour market
(ii) Explain why a monopsony maximizes its profits by paying labour a wage rate that is less than the marginal revenue product of labour.

3. a. Illustrate and describe the main flow of funds in capital markets.
b. Explain how the age structure of the population and the interest rate influences the supply of capital.
c. Declan runs a courier business and is considering buying a new van which costs £20,000. He intends keeping the van for five years after which time he will sell it for £7,000. With this new van Declan hopes to generate business that will bring in an additional £5,000 at the end of each of the next five years. If the interest rate is 10% should Declan buy the van?

4. a. In class you learned that consumers derive benefits from economic information and that these benefits must be balanced with the cost of attaining that information. Show how this information can be used to explain a consumer's search behaviour.
b. Asymmetric information creates two special types of market failure – moral hazard and adverse selection. Explain the problems that arise in second hand car markets or in the market for insurance due to asymmetric information. What measures can be introduced to overcome these problems?

5. Two goods are produced in the economy, wheat and barley. The production possibility frontier shows the different combinations of wheat and barley that can be produced given the amount of land available.



a. Explain why production at A would be technically inefficient and explain why a movement to point (i), (ii) or (iii) on the production possibility frontier would lead to a pareto improvement.
b. Given that wheat is used to produce bread and barley is used to produce beer do you think producing at point B or C would be allocatively efficient? Explain why.
c. Give an example of where:
   (i) the pursuit of more equity leads to an increase in efficiency
   (ii) the pursuit of more equity leads to a decrease in efficiency.

6. **NOTE: If answering this question please answer <u>EITHER</u> Part A <u>OR</u> Part B**

PART A

a. Define an externality and give two examples
b. List three possible solutions to the externality problem and explain when they should be used.
c. The tragedy of the commons refers to the tendency of open-access resources to be over-exploited. Using the fishing lake example used in class list and explain two options that can be used to ensure that overexploitation of the resource does not occur.

PART B

A firm produces waste from production that affects the surrounding community. In particular, the firm pumps its waste into the nearby river affecting the enjoyment of fishing and swimming. Graphically illustrate the externality problem in terms of divergence between marginal private costs and marginal social costs (hint: on the x-axis put units of production of waste). What is the most obvious way to solve this problem?

7. a. List and explain the two main reasons why a pure market economy fails to provide public goods in sufficient quantity.
   b. Illustrate and explain why it would be inefficient to charge a positive price for a pure public good.
   c. There are special categories of public goods in which private provision will occur. Give two examples and explain why they will be provided by the private sector.

8. a. Cost-benefit analysis is used in the evaluation of projects. Explain.
   b. A decision must be taken on whether to proceed with a project which affects three individuals. The table below outlines the welfare change (in terms of income) for each individual and their social marginal utility of income.

Individual	ΔY	SMUI
A	-100	2
B	+150	1
C	+100	1.5

ΔY = income based measure of changes in welfare
SMUI = social marginal utility of income

(i) Based on the income-based measure of changes in welfare should this project proceed? Explain why.
(ii) Based on the overall change in welfare should this project proceed? Explain why.

c. One major problem with cost-benefit analysis is the difficulty in estimating the benefits of non-marketed commodities. List and explain two methods that can be used to determine the benefits derived from non-marketed commodities.