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UNIVERSITY OF LONDON

279 0015 ZB

BSc degrees and Diplomas for Graduates in Economics, Management, Finance and the Social Sciences, the Diploma in Economics and Access Route for Students in the External Programme

Economics of Labour

Wednesday, 31 May 2006 : 10.00am to 1.00pm

Candidates should answer **SEVEN** of the following **NINE** questions: All **FIVE** questions from Section A (10 marks each) and **TWO** questions from Section B (25 marks each).
Candidates are strongly advised to divide their time accordingly.

A hand held calculator may be used when answering questions on this paper but it must not be pre-programmed or able to display graphics, text or algebraic equations. The make and type of machine must be stated clearly on the front cover of the answer book.

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SECTION A

Answer all **five** questions from this section (10 marks each).

1. Suppose that a worker's utility function is given by $U=(C/2)L$, where C is weekly consumption and L is leisure measured in hours of each day. Assume a working week is 5 days and that the working day lasts 8 hours.

This worker has a pension that generates an income of £180 a week but has no other sources of income.

- (a) Determine this worker's weekly reservation wage.
 - (b) Determine this worker's optimal number of days of work and consumption when his market wage is £6 an hour.
2. Consider an economy with two types of workers: Skilled (L_s) and Unskilled (L_u) who receive wages of £10 and £5 an hour respectively. Suppose a firm's production function is given by:

$$Y = (0.4L_u^2 + 0.6L_s^2)^{1/2}$$

- (a) Find the cost minimising ratio of skilled labour to unskilled labour.
 - (b) What is the estimated elasticity of substitution between skilled and unskilled labour?
3. Suppose the labour force in an economy is divided into 3 states: Employed, (E), Unemployed (U) and Inactive (I) and that the number of employed is 80, the number of unemployed is $U=20$ and the number of inactive is 50.
- (a) Find:
 - i. the unemployment rate.
 - ii. the participation rate.
 - iii. the employment rate.

(question continues on the next page)

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- (b) Show that:

$$\text{employment rate} = \text{participation rate} * (1 - \text{unemployment rate})$$

$$\text{Let } P = E + U + I$$

$$L = E + U$$

So:

$$\begin{aligned} E/P &= L/P * (1 - U/L) \\ &= L/P * (L - U/L) = L/P * (E/L) = E/P \end{aligned}$$

- (c) If the unemployment rate now falls by 5 percentage points in this economy and the employment rate rises by 2 percentage points, does all of the fall in the unemployment level go into increased employment?

4. Suppose a firm discriminates against minority workers and in favour of majority workers and that the discrimination coefficient is found to be 0.3.

- (a) At what wage would the firm begin to hire minority workers?
- (b) A labour economist estimates the following wage equations for majority and minority workers along with the sample means of the variables as follows:

Majority workers:

$$\text{Log}(W_{\text{Maj}}) = 2 + 0.1 \text{YearsEducation} + 0.03 \text{Age}$$

$$\text{Log}(\bar{W}_{\text{maj}}) = 3 \quad \text{YearsEducation}_{\text{maj}} = 18 \quad \text{Age}_{\text{maj}} = 40$$

Minority workers:

$$\text{Log}(W_{\text{min}}) = 1.9 + 0.09 \text{YearsEducation} + 0.025 \text{Age}$$

$$\text{Log}(\bar{W}_{\text{min}}) = 2 \quad \text{YearsEducation}_{\text{min}} = 17 \quad \text{Age}_{\text{min}} = 25$$

Find out how much of the wage gap between majority and minority workers is caused by differences in characteristics and how much is caused by differences in returns to characteristics (discrimination).

Base your decomposition on minority characteristics and majority returns (coefficients).

5. Consider a 2-period model of a firm deciding whether to offer on-the-job firm-specific training to its workforce.
The revenue that the firm receives from a trained worker is 110 and the revenue from a worker without training is 50.

The wage paid in period 1 is W_1 and the wage paid in period 2 is W_2 .

If the discount rate is 0.1, it takes 1 period to train a worker and the cost of training is 20.

Find:

- (a) the firm's break even level, where labour costs equal total worker revenue.
- (b) What happens if $W_1=W_2=50$?
- (c) What is the stable wage profile in this case?

SECTION B

Answer any **two** questions from this section (25 marks each).

- 6. The European Union average unemployment rate is currently 8.3%. What labour market policies could be used to reduce unemployment in the European Union?
- 7. What effects do trade unions have on employment and pay? Explain your answer.
- 8. Legislation against age discrimination in the labour market will come into force in the UK in October 2006. Explain what effect this should have on the labour market position of the over sixties in the UK.
- 9. The UK government will introduce higher tuition fees for university undergraduates this autumn. Outline the possible effects that this will have on the labour supply of young people over time.

END OF PAPER

