EXAMINATIONS

April 1997

Subject B — Economics and Finance

Paper One

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Write your surname in full, the initials of your other names and your Candidate's Number on the front of the answer booklet.*

2. *Begin your answers to Parts One, Two and Three on a separate sheet.*

3. *Mark allocations are shown in brackets.*

4. *Attempt all 37 questions.*

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet and this question paper.

In addition to this paper you should have available Actuarial Tables and an electronic calculator.

PART ONE

For questions 1–26 indicate in your answer booklet which one of the answers A, B, C or D is correct.

1 Under what conditions can two risky assets A and B be combined to form a riskless portfolio?

A The returns of assets A and B are perfectly negatively correlated.

B The combined portfolio of assets A and B has 50 per cent of its value in asset A and 50 per cent in asset B.

C The returns of assets A and B are perfectly positively correlated.

D The returns of assets A and B have a correlation coefficient of zero.

[1½]

2 A monopoly firm is able to sell 15 units of Good X per day when the price of Good X is £8.00 per unit and 16 units of Good X per day when the price is £7.80 per unit. The marginal revenue for the 16th unit of Good X sold is:

A £8.00
B £7.80
C £4.80
D –£0.20 [1½]

3 For a profit maximising monopolist:

A average revenue is equal to marginal cost
B average revenue is greater than marginal cost
C average revenue is equal to marginal revenue
D average revenue is less than marginal revenue [1½]

4 When the absolute value of a good's price elasticity of demand is greater than one then:

A a decrease in price causes a decrease in total revenue
B an increase in price causes a decrease in total revenue
C an increase in price causes an increase in total revenue
D an increase in price causes no change in total revenue [1½]

5 A perfectly competitive firm is producing at a level of output for which short run marginal cost exceeds marginal revenue. What should the firm do to maximise its short run profits?

A raise its price
B reduce its price
C raise its output
D reduce its output [1½]

6 A consumer spends all his income on only two goods, X and Y. Currently the marginal utility of the last unit of Good X consumed is six times as great as the marginal utility of the last unit of Good Y consumed. The price of Good X is three times as great as the price of Good Y. To maximise utility the consumer should:

A consume more of Good X and less of Good Y
B consume less of Good X and more of Good Y
C increase consumption of both Good X and Good Y
D decrease consumption of both Good X and Good Y [1½]

7 The total cost of producing 7 units of Good X is £49 and the total cost of producing 8 units of Good X is £60. Between 7 and 8 units of output the marginal cost is:

A equal to average total cost
B greater than average total cost
C less than average variable cost
D equal to average variable cost [1½]

8 Constant returns to scale means that as a firm's scale of production is increased:

A long run total costs remain constant
B total output remains unchanged
C long run average costs and long run marginal costs are equal
D fixed costs remain constant [1½]

9 A profit maximising firm should be advised to continue production in the short run if its average revenue is sufficient to cover its:

A average total cost
B average fixed cost
C average variable cost
D marginal cost [1½]

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10 Consumer A has a higher income than consumer B but they have identical preferences and pay the same prices for the goods which they consume. If they are both utility maximisers then:

A The marginal utility from each good consumed will be higher for A than for B and A will have a higher total utility.

B The marginal utility from each good consumed will be higher for A than for B and A will have a lower total utility.

C The marginal utility from each good consumed will be lower for A than for B and A will have a higher total utility.

D The marginal utility from each good consumed will be lower for A than for B and A will have a lower total utility.

[1½]

11 A demand curve which has an absolute price elasticity of one throughout its length will be:

A vertical
B horizontal
C upward sloping
D downward sloping [1½]

12 If a minimum guaranteed price is set for Good X above the equilibrium price for Good X, this will result in:

A an increase in demand for Good X
B an decrease in supply of Good X
C excess supply of Good X
D excess demand for Good X [1½]

13 Assume that there are only two assets available for investment, both of which are risky. If the two assets have the same expected rate of return and the returns from the two assets are uncorrelated, a risk averse investor:

A is indifferent as to whether she holds one asset or both assets in her portfolio

B will hold a portfolio which combines both assets

C will seek to maximise her expected rate of return

D will face no risks if she holds both assets in the same value-weighted proportion [1½]

14 A country has a population of 25 million of whom 10.5 million are in employment and 1.5 million are unemployed. What is the rate of unemployment?

A 6%
B 10.3%
C 12.5%
D 14.3% [1½]

15 Unanticipated inflation:

A increases the opportunity cost of holding money and redistributes income from fixed rate borrowers to lenders

B increases the opportunity cost of holding money and redistributes income from fixed rate lenders to borrowers

C reduces the opportunity cost of holding money and redistributes income from fixed rate borrowers to lenders

D reduces the opportunity cost of holding money and redistributes income from fixed rate lenders to borrowers

[1½]

16 Given the Gross Domestic Product (GDP) at factor cost, the GDP at market prices can be calculated by:

A adding indirect taxes and adding subsidies
B adding indirect taxes and subtracting subsidies
C subtracting indirect taxes and subtracting subsidies
D subtracting indirect taxes and adding subsidies [1½]

17 An increase in the money supply will have a bigger impact on real output the more:

A interest elastic is the demand for money and the more interest elastic is the level of investment

B interest inelastic is the demand for money and the less interest elastic is the level of investment

C interest elastic is the demand for money and the more interest inelastic is the level of investment

D interest inelastic is the demand for money and the more interest elastic is the level of investment

[1½]

18 Assume a linear relationship between the marginal propensity to consume and the level of disposable income with some positive level of autonomous consumption. As the level of disposable income rises the average propensity to consume:

A and the average propensity to save will rise
B and the average propensity to save will fall
C will fall and the average propensity to save will rise
D will rise and the average propensity to save will fall [1½]

19 An increase in stocks above the planned level indicates that aggregate planned expenditure is:

A greater than real output and firms will respond by increasing output
B less than real output and firms will respond by reducing output
C greater than real output and firms will respond by reducing output
D less than real output and firms will respond by increasing output [1½]

20 The "crowding out" effect associated with an increase in government borrowing could be reduced or eliminated by an accommodating increase in:

A government expenditure
B taxation
C money supply
D marginal propensity to save [1½]

21 The transactions demand for money will be greater the:

A higher the price level
B lower the level of real income
C higher the rate of interest
D higher the speculative (asset) demand for money [1½]

22 Assume that the actual rate of unemployment is above the natural rate of unemployment because the expected rate of inflation is above the actual rate of inflation. If the expected rate of inflation falls to equal the actual rate of inflation then real wages will:

A fall and real output will rise
B fall and real output will fall
C rise and real output will rise
D rise and real output will fall [1½]

23 According to Keynesian analysis, the adoption of a policy to reduce the government's budget deficit will involve:

A an increase in aggregate demand and a reduction in real output
B an increase in aggregate demand and an increase in real output
C a reduction in aggregate demand and a reduction in real output
D a reduction in aggregate demand and an increase in real output [1½]

24 The current dollar($) per pound(£) sterling exchange rate is \$1.50/£1. The forecast for inflation rates for the year is 7.5% for the United States and 2.5% for the United Kingdom. What would be the forecast for the dollar-pound exchange rate one year from now if purchasing power parity is used?

A \$1.650/£1
B \$1.575/£1
C \$1.425/£1
D \$1.350/£1 [1½]

25 The business cycle is defined as:

A the annual cycle of output
B the long run trend path of output after removing short run variations
C the short run path of output around the long run trend
D none of the above [1½]

26 If a country has a current account deficit then:

A Gross Domestic Product is greater than Gross National Product

B Gross Domestic Product is less than Gross National Product

C Gross Domestic Product is the same as Gross National Product

D we cannot say whether Gross Domestic Product differs from Gross National Product from this information

[1½]

PART TWO

27 Consider the following data for a perfectly competitive firm, where the market price for the commodity is £32:

Output per week	*Total Cost (£s)*
0	5
1	45
2	78
3	103
4	121
5	147
6	179
7	225

(i) Construct a table showing the marginal cost and average variable cost at each level of output. [2]

(ii) Calculate the profit maximising level of output for the firm. [1]

(iii) Calculate the profit at the profit maximising level of output. [1]
[Total 4]

28 Read parts (i) to (iii) before answering. Use only one diagram to answer all three parts of the question.

A consumer has an income of £600 which he can spend on Good X or Good Y or some combination of the two goods. Good X costs £20 per unit and Good Y costs £40 per unit.

(i) Draw a budget line for the consumer, labelling the quantities of Good X and Good Y at the points where the budget line meets the quantity of Good X and Good Y axes. [1]

(ii) Draw an indifference curve for Good X and Good Y labelled IC1 part of which shows a number of different combinations of quantities of Good X and Good Y which the consumer could afford to buy. Mark with a Z all the points on the curve where the consumer is spending all his income. [2]

(iii) Draw a second indifference curve for Good X and Good Y labelled IC2 which represents an unobtainable level of welfare for the consumer. [1]
[Total 4]

29 You are given the following data on projects A and B.

Probability	*Expected return on project A*	*Expected return on project B*
0.1	0%	5%
0.2	5%	10%
0.3	20%	15%
0.4	30%	20%

An investor can invest his wealth either in project A or project B but not both.

(i) Which is the riskier project? Explain your reasoning. [2]

(ii) Which project would be undertaken by a risk neutral investor? Explain your reasoning. [2]

[Total 4]

30 (i) Draw a diagram to illustrate the short run profit maximising price and output for a monopolistic competitor firm making losses but sufficient revenue to continue production in the short run.

Use the following labels; AC1 for average cost curve, MC1 for marginal cost curve, AVC1 for average variable cost curve, MR1 for marginal revenue curve, AR1 for average revenue curve. Also mark the price P1, quantity Q1, average cost C1 and average variable cost C2 when profit is maximised. [2]

(ii) Explain the key assumption which differentiates a market structure characterised by perfect competition from a market structure characterised by monopolistic competition. [2]

[Total 4]

31 An investor can invest in only two risky assets A and B. Asset A has an expected rate of return of 10% and a standard deviation of return of 20%. Asset B has an expected rate of return of 15% and a standard deviation of return of 30%. The correlation coefficient between the returns of Asset A and the returns of Asset B is 0.6.

(i) What is the expected rate of return if 20% of an investor's wealth is invested in Asset A and the remainder is invested in Asset B? [1]

(ii) What is the standard deviation of return on the portfolio if 20% of an investor's wealth is invested in Asset A and the remainder is invested in Asset B? [2]

(iii) Explain why an investor who invests 20% of his wealth in Asset A and the remainder in Asset B is risk averse. [1]

[Total 4]

32 You are given the following data on a closed economy (figures in £ millions):

National Income	*Planned Consumption*	*Planned Investment*	*Government Expenditure*
400	280	120	60
500	350	120	60
600	420	120	60
700	490	120	60
800	560	120	60

(i) Calculate the value of planned savings at the equilibrium level of national income. [1]

(ii) Calculate the value of unplanned additions (+) or falls (-) in stocks if national income is £750 million. [1]

(iii) Calculate the equilibrium level of national income if planned investment rises from £120 million to £150 million. [2]

[Total 4]

33 (i) Explain briefly how a central bank conducts a contractionary open market operation in the money market, making clear the implications of the operation for the price of Treasury bills and the short term rate of interest. [2]

(ii) Write down the equation for the money multiplier that shows the link between the narrow money supply and the broad money supply. Your equation must include the following variables and notation; C for the proportion of deposits held by the public as cash and R for the proportion of deposits held by the banks as cash. [1]

(iii) If the narrow money supply rises by 9 per cent and the money multiplier is 3 then by what percentage does the broad money supply rise? [1]

[Total 4]

34 The government in a closed economy undertakes expenditure on goods and services of £200 million. Investment expenditure is £100 million and the rate of direct taxation is 25 per cent of all income. The consumption function is given by the equation:

$C = 0.8\,Yd$

where C is planned consumption
and Yd is disposable income (i.e. after deduction of income tax)

(i) Calculate the level of national income at which the government has a balanced budget. [1]

(ii) Calculate the government budget deficit/surplus if national income were £600 million. [1]

(iii) Calculate the level of government expenditure required to achieve the full-employment level of income of £900 million. [2]

[Total 4]

35 You are given the following data concerning the man hours required to produce 1 unit of good X and 1 unit of good Y in two countries A and B:

	1 Unit of Good X	*1 Unit of Good Y*
Country A	20	10
Country B	15	3

(i) Which country has a comparative advantage in the production of Good X and which country has an absolute advantage in the production of Good X? [1]

(ii) Which good will be exported by Country A and which good will be exported by Country B? [1]

(iii) State two numerical ratios (in whole units) for which the two countries could exchange Good Y for 1 unit of Good X and both be better off. [1]

(iv) If for some reason, Country B reduces the man hours required to produce 1 unit of Good X from 15 hours to 6 hours, would the volume of international trade based upon comparative advantage increase or decrease? Explain your reasoning. [2]

[Total 5]

36 Complete each of the following statements with the appropriate phrase or word(s).

(i) The index of a country's export prices relative to the index of its import prices is known as the ________. [1]

(ii) The theory that inflation rate differences between countries are the main reason for exchange rate movements between their currencies is known as _________ theory. [1]

(iii) If the German interest rate is 5 per cent per annum and the United States interest rate is 7 per cent per annum then the dollar is expected to __________ at 2 per cent per annum against the deutschmark to compensate international investors. [1]

(iv) The initial deterioration and later improvement in a country's account following a devaluation is known as the __________ effect. [1]

[Total 4]

PART THREE

37 (i) A perfectly competitive firm is making normal profits. Analyse the effects of a fall in its variable costs of production.

Use appropriate diagrams to illustrate your answer and look at both the short run and the long run impact on price and output at both the firm and industry level. [10]

(ii) Discuss the view that a perfectly competitive industry will always charge a lower price than the same industry run by a monopoly firm. Illustrate your answer with the aid of appropriate diagrams. [10]

[Total 20]