

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

19 April 2024 (am)

Subject CB2 – Business Economics Core Principles

Time allowed: Three hours and twenty minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

1 Which changes are most relevant to macroeconomics?

Changes in:

- A real gross domestic product.
- B the wage rate paid to workers at a car manufacturing plant.
- C the price of computers purchased.
- D the quantity of ships produced in a country.

[1.5]

2 If Good X is a Giffen good then a rise in the price of Good X will result in:

- A an increase in the consumer's utility.
- B a rightward shift in the consumer's budget line.
- C a decrease in the quantity demanded.
- D an increase in the quantity demanded.

[1.5]

3 Good X is a normal good. Assuming no other changes to the factors that affect the supply and demand for Good X, which statement is true if there is a general fall in income?

- A The price of Good X will rise.
- B The quantity supplied of Good X will rise.
- C The quantity supplied of Good X will remain unchanged.
- D The price of Good X will fall.

[1.5]

4 What is the minimum information necessary to determine a company's short run shut down point?

- A Total revenue; total fixed costs; total variable costs
- B Average revenue; average variable costs
- C Total revenue; average total costs
- D Average revenue; average total costs; average variable costs.

[1.5]

- 5 Company A is a manufacturer of high-quality men's suits. To boost revenues, it is considering third-degree price discrimination.

Which statement best explains why such a strategy may not be possible to implement?

- A Company A is unable to place its customers in different age groups.
- B Company A is unable to offer customers different pricing options for the purchase of suits.
- C Company A is unable to put potential customers into different categories based on their occupation.
- D Company A is unable to keep its prices low if it were to increase production of its suits.

[1.5]

- 6 You are given the following data:

<i>Price (£)</i>	<i>Quantity demanded</i>
90	200
80	300
70	400
60	500
50	600

For which price change is the price elasticity of demand equal to -1.0 using the arc (average) method?

- A From £80 to £90
- B From £70 to £80
- C From £60 to £70
- D From £50 to £60.

[1.5]

- 7 An indifference set is a:

- A set of indifference curves that give the same utility.
- B table of alternative combinations of goods that give the same utility.
- C set that shows how much a consumer likes different goods.
- D combination of two different goods on which the consumer can spend their budget.

[1.5]

- 8** Constant returns to scale means:
- A short run average total costs are unchanged as output rises.
 - B long run average total costs are unchanged as output rises.
 - C short run total costs are unchanged as output rises.
 - D long run total costs are unchanged as output rises.
- [1.5]
- 9** A firm decides to increase sales from 10 units to 11 units by reducing its price from £10 to £9 while its marginal cost of production of the 11th unit is £1. This implies that the firm:
- A is profit maximising.
 - B is sales maximising.
 - C is not following the profit maximisation rule.
 - D has positive marginal revenue from the 11th unit.
- [1.5]
- 10** According to the law of diminishing returns, as the input of the variable factor of production is increased, total product will:
- A increase in a linear fashion.
 - B initially increase at a diminishing rate and then increase at an increasing rate.
 - C initially increase at an increasing rate then increase at a decreasing rate.
 - D diminish as the input of the variable factor of production increases.
- [1.5]
- 11** Under the Cournot model of duopoly, equilibrium will occur when the:
- A price set by the two firms are equal.
 - B marginal costs of the two firms are equal.
 - C reaction functions of the two firms intersect.
 - D total quantity produced by the two firms is equal to the monopoly output.
- [1.5]

12 Consider the following table:

<i>Units of labour</i>	<i>Units of capital</i>	<i>Output</i>
1	1	100
2	2	180
3	3	250
4	4	300
5	5	340

The price of labour is £50 per unit and the price of capital is £100 per unit.

The table illustrates which of the following?

- A The law of diminishing marginal returns
- B Decreasing returns to scale
- C Constant returns to scale
- D Increasing returns to scale.

[1.5]

13 Bigfirm is a monopolist in the market for household gas.

As part of a limit pricing strategy, Bigfirm is currently producing quantity Q and charging price P . However, NewCo has decided to enter the market.

What is the most likely reason for NewCo's decision?

- A NewCo has lower marginal costs than Bigfirm.
- B Bigfirm's marginal costs are above Bigfirm's marginal revenues.
- C NewCo's average costs are below price P .
- D Bigfirm's average costs are higher than price P .

[1.5]

14 Which of the following is added to the gross domestic product to arrive at gross national income?

- A Net income from abroad
- B Increases in stocks of unsold goods
- C Government expenditure on social security payments
- D Depreciation of the capital stock.

[1.5]

- 15** In an open economy with a high degree of unemployment, which one of the following will result in a fall in stocks of goods and a rise in output?

You are given: S = planned savings, I = planned investment, T = taxation,
G = government expenditure, M = import expenditure, X = export receipts.

- A $S + T + I < M + G + X$
- B $S + T + M < I + G + X$
- C $S + T + I > M + G + X$
- D $S + T + M > I + G + X$.

[1.5]

- 16** If the money supply decreases due to a contractionary open market operation by the central bank, then the short-term rate of interest will:

- A rise as the price of treasury securities falls.
- B rise as the price of treasury securities rises.
- C fall as the price of treasury securities falls.
- D fall as the price of treasury securities rises.

[1.5]

- 17** In a closed economy the following information is given:

- The tax rate is 25% of the national income.
- Consumption expenditure (C) is related to current disposable income (Y_d) by the formula $C = \text{£}20 \text{ million} + 0.8 Y_d$.
- Investment expenditure is £100 million.
- Government expenditure is £120 million.

Which of the following statements is FALSE?

- A If national income is £800 million then consumption expenditure is £500 million.
- B The equilibrium national income is £600 million.
- C The tax revenue at the equilibrium level of national income is £150 million.
- D The multiplier effect of an increase of investment is 5.

[1.5]

- 18** Which of the following is NOT one of the main macroeconomic objectives of a government?

- A A balanced fiscal budget
- B A high level of employment
- C A high and stable economic growth rate
- D A low and stable inflation rate.

[1.5]

- 19** When countries engage in international trade, one of the advantages of specialisation is that it will enable a country to:
- A improve its terms of trade.
 - B export goods in which it has a lower opportunity cost of production.
 - C import cheaper labour to use in its production processes.
 - D attract foreign direct investment into the import competing sector of its economy.
- [1.5]
- 20** Which of the following will always result in an increase in the national debt?
- A A fall in the rate of interest payable on government bonds
 - B A rise in borrowing from the rest of the world
 - C A fiscal deficit
 - D A trade account deficit.
- [1.5]
- 21** Which of the following will increase the domestic national income if an open economy is at less than full employment?
- A A fall in the marginal propensity to save
 - B A fall in foreign income
 - C A rise in the marginal propensity to import
 - D A rise in the marginal rate of taxation.
- [1.5]
- 22** Which of the following is likely to raise the natural rate of unemployment?
- A Improved information flows on job availability
 - B A rise in unemployment benefits
 - C A fall in government expenditure
 - D A decrease in the money supply.
- [1.5]
- 23** Which of the following are the correct responses for the missing words (i), (ii) and (iii) in the following statement?
- ‘An appreciation of the domestic currency will likely act to ___(i)___ the volume of imports and ___(ii)___ the volume of exports and ___(iii)___ the recorded inflation rate.’
- A (i) increase, (ii) decrease, (iii) increase
 - B (i) increase, (ii) decrease, (iii) decrease
 - C (i) decrease, (ii) increase, (iii) increase
 - D (i) decrease, (ii) decrease, (iii) decrease.
- [1.5]

24 Which of the following items will be recorded as a plus in the balance of payments accounts?

- A Lending by domestic banks to foreign citizens
- B A fall in the country's holdings of foreign exchange reserves
- C Outward foreign direct investment
- D Import expenditure.

[1.5]

25 The government of Country A announces two new macroeconomic plans:

1. The central bank will increase its purchases of Country A's government securities.
2. It is going to increase taxes for every income bracket in Country A.

Which macroeconomic policies relate to these two new plans?

- A Contractionary monetary policy and expansionary fiscal policy
- B Expansionary monetary policy and expansionary fiscal policy
- C Expansionary monetary policy and contractionary fiscal policy
- D Contractionary monetary policy and contractionary fiscal policy.

[1.5]

26 Which of the following is NOT a crowding out effect after an increase in government expenditure financed by increased government borrowing?

- A A rise in the domestic interest rate
- B Consumers increase savings as they expect higher future taxes
- C Private investment increases due to greater government expenditure
- D Exports decrease because of an exchange rate appreciation due to a higher domestic interest rate.

[1.5]

27 A firm has the following data:

<i>Number of units sold</i>	<i>Total revenue (£)</i>
10	200
20	360
30	480
40	560
50	600
60	600
70	560

Variable costs are constant at £6 per unit produced. Fixed costs are £200.

- (i) Construct a table showing the price associated with each of the above number of units sold. [1]
 - (ii) Calculate the profit maximising output of the firm. [1]
 - (iii) Calculate the profits at the profit maximising output. [1]
 - (iv) Calculate the average variable cost at the profit maximising output. [1]
 - (v) Determine the short run level of output (or outputs) at which profits are £100. [1]
- [Total 5]

28 Outline the long run relationship between the marginal cost and price and between the average cost and price, for each of the following market structures. Assume that under a monopoly the firm is able to earn excess profits.

- (i) Perfect competition. [2]
 - (ii) Monopolistic competition. [2]
 - (iii) Monopoly. [2]
- [Total 6]

29 State, for each of the following cases concerning Good X, the substitution effect, income effect and overall effect on the demand for Good X of a fall in the price of Good X.

- (i) Good X is an inferior good. [1]
- (ii) Good X is a Giffen good. [1]
- (iii) Good X is a normal good. [1]

State whether the following goods are substitutes or complements and also state the sign of the cross elasticity of demand.

- (iv) Petrol and cars. [1]
 - (v) Buses and cars. [1]
- [Total 5]

30 (i) Explain in words the impact of an indirect tax on the industry level of output and price. [1]

(ii) Comment on how such a tax will affect the amount of consumer and producer surplus. [2]

(iii) Discuss what is meant by a reaction function in the Cournot model of duopoly and how one firm will react to a perceived increase in the output of the other firm. [2]

[Total 5]

31 Explain with the aid of a numerical example, how game theory can result in two firms, Firm X and Firm Y, setting prices that are not in their mutual interests and how agreeing to higher prices can lead to higher joint profits. [5]

32 (i) Explain whether gross national income is greater or less than gross domestic product if a country has a negative net property income from abroad. [1]

(ii) Explain why an increase in nominal gross domestic product can be associated with a fall in the real gross domestic product. [1]

(iii) Explain how the gross domestic product deflator differs from the consumer price index. [1]

(iv) Explain why real gross domestic product per capita can decrease even if the population of a country falls. [1]

(v) Explain why the value of imports is entered as a negative value when calculating the gross domestic product. [1]

[Total 5]

- 33** (i) A new coffee shop chain called Superior enters the retail coffee market that is a monopolistically competitive market. It aims to charge significantly above the industry average per cup of coffee consumed in its shops. Explain how it may differentiate its product to make excess profits in the short run. [3]
- (ii) Assume that the coffee chain Superior succeeds in making excess profits in the short run. Discuss what is likely to happen to its demand, price and output over the longer term. [2]
- [Total 5]
- 34** The monetarist school argues that money supply increases can result in a short-run trade-off between inflation and unemployment but that such a trade-off does not exist in the long run.
- Explain the economic reasoning that monetarists use to justify this argument. [5]
- 35** (i) Discuss how a country and its consumers can benefit from international trade. [4]
- (ii) Discuss how a multinational insurance business can benefit from globalisation and the different ways that it can expand its business internationally. [4]
- (iii) Identify the factors that may affect how a multinational expands its international business. [2]
- [Total 10]
- 36** (i) Explain how, in an open economy with perfect capital mobility, an expansionary monetary policy has differing effects on output and employment depending on whether there is a fixed or floating exchange rate regime. [5]
- (ii) Explain how, in an open economy with perfect capital mobility, an expansionary fiscal policy has differing effects on output and employment depending on whether there is a fixed or floating exchange rate regime. [5]
- [Total 10]

END OF PAPER