INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

22 September 2023 (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.

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1 Which of the following would not be classified as a resource in economics?

A Machinery
B Casual labour
C Money in the bank
D Land.

[1½]

2 Free market economies are classed as those where:

A individuals and firms make decisions that determine economic outcomes with SOME government involvement in priority sectors such as healthcare and education.
B individuals and firms make decisions that determine economic outcomes and there is NO government involvement in any sector of the economy.
C individuals and government make decisions that determine economic outcomes in ALL sectors of the economy.
D firms and the government make decisions that determine economic outcomes in ALL sectors of the economy.

[1½]

3 Which of the following does NOT limit the maximum output an economy is able to produce?

A The availability of capital.
B The skill level of the labour force.
C The level of demand in the economy.
D The availability of inputs.

[1½]

4 The majority of breakfast cereals contain rice as a key ingredient. If the price of rice falls, what is the likely impact on the equilibrium price and quantity traded of breakfast cereals?

A Price stays the same and quantity falls.
B Price falls and quantity rises.
C Price rises and quantity rises.
D Price falls and quantity stays the same.

[1½]

5 A consumer's demand curve for Good X is represented by the equation:

$$Q_{dx} = 100 - 0.2P_x$$

where Q_{dx} is the quantity of Good X demanded and P_x is the price of Good X.

A producer's supply curve for Good X is represented by the equation:

$$Q_{sx} = 20 + 0.6P_x$$

where Q_{sx} is the quantity of Good X supplied and P_x is the price of Good X.

Demand and supply are in equilibrium when:

A quantity is 60 and price is 80.
B quantity is 70 and price is 90.
C quantity is 80 and price is 100.
D quantity is 90 and price is 110.

[1½]

6 Following a 10% rise in price of Good A, the quantity demanded for Good B rises by 25%. What does this imply about the relationship between Goods A and B?

A They are complements and are closely related.
B They are complements and are not closely related.
C They are substitutes and are closely related.
D They are substitutes and are not closely related.

[1½]

7 A perfectly competitive firm will:

A make supernormal profit in the long run.
B face barriers when entering the industry.
C charge a price equal to the marginal cost of the firm.
D normally face a downward sloping demand curve.

[1½]

8 A firm with falling long run average costs is experiencing:

A increasing returns to scale.
B decreasing returns to scale.
C diminishing returns.
D constant returns to scale.

[1½]

9 In the short run a rise in wages will:

A increase the firm's average fixed costs.
B decrease the firm's average total costs.
C decrease the firm's average variable costs.
D increase the firm's marginal costs.

[1½]

10 A firm operating in an oligopoly differs from one operating in perfect competition because:

A under perfect competition there are only a few firms, whereas in an oligopoly there are many firms.
B under perfect competition a firm experiences a downward sloping demand curve, but in an oligopoly the firm tends to have a perfectly elastic demand curve.
C under perfect competition firms can only make normal profit in the long run, whereas in an oligopoly firms can make abnormal profit in the long run and short run.
D under perfect competition firms may be able to dominate the market and restrict entry, whereas firms operating in an oligopoly tend to facilitate free entry.

[1½]

11 Given the information in the table below, calculate Gross Domestic Product (GDP) at market prices using the income method:

	$ million
Mixed incomes	200
Exports of goods and services	700
Imports of goods and services	550
Taxes	150
Wages and salaries	850
Consumption expenditure	975
Subsidies	25
Gross capital formation	350
Operating surplus	450

A $1,625 million
B $1,500 million
C $2,575 million
D $2,450 million.

[1½]

12 Which of the following is an injection in the circular flow of income model?

A Consumption
B Net taxes
C Exports
D Imports.

[1½]

13 In an economy where the working population increasingly undertake activities themselves rather than employing someone else to undertake the task, then national income:

A will generally be reported at a higher value than it would be otherwise.
B will be growing at a faster rate than official figures report.
C will generally be reported at a lower value than it would be otherwise.
D growth is unchanged by the working population undertaking activities themselves.

[1½]

14 An individual who is not actively looking for work after having lost their job due to a change in the availability of jobs in their local area is:

A cyclically unemployed.
B structurally unemployed.
C involuntarily unemployed.
D not part of the labour force.

[1½]

15 If a country's unemployment level rises, it is likely that:

A its welfare payment bill will fall.
B its income tax revenue rises.
C its production possibility curve shifts outwards.
D it is operating inside its production possibility curve.

[1½]

16 If nominal GDP increased by 11% in the last year, while real GDP rose by 5% then the GDP deflator has:

A risen by approximately 6%.
B fallen by approximately 6%.
C risen by approximately 11%.
D fallen by approximately 11%.

[1½]

17 The aggregate demand curve may shift to the right following:

A an appreciation of the domestic currency.
B a fall in business confidence.
C a fall in interest rates.
D an increase in the rate of income tax.

[1½]

18 If the consumption function lies above the 45° line, then:

A spending is less than income.
B spending is equal to income.
C saving is more than expenditure.
D spending is greater than income.

[1½]

19 A decrease in the average wage will:

A shift the long run and short run aggregate supply curves downwards.
B shift the long run and short run aggregate supply curves upwards.
C not shift the short run aggregate supply but will shift the long run aggregate supply curves downwards.
D shift the short run aggregate supply curve downwards and leave the long run aggregate supply curve unchanged.

[1½]

20 The government of a closed economy with no taxes wishes to expand real GDP by £12 billion. If the marginal propensity to consume is 0.667, what is the approximate change in the level of government spending (in £ billion) on goods and services required to achieve this?

A 18
B 4
C 12
D 8.

[1½]

21 In the presence of an inflationary gap in the standard Keynesian model, an appropriate policy response would be:

A reduce government expenditure.
B increase the level of protectionism by raising tariffs and implementing quotas.
C decrease the rate of income tax.
D increase the level of unemployment benefits.

[1½]

22 The purchase of Treasury bills by the Central Bank will likely lead to:

A a decrease in loans.
B a decrease in aggregate demand.
C an increase in the rate of interest.
D a decrease in the rate of interest.

[1½]

23 Money that is held to take advantage of unforeseen events is associated with the:

A asset motive for holding money.
B precautionary motive for holding money.
C speculative motive for holding money.
D transactions motive for holding money.

[1½]

24 Which of the following statements correctly describes the impact of removing a tariff?

A Consumers pay a higher price, producers receive a lower price and the government receives tariff income.
B Consumers pay a lower price, producers receive a higher price and the government loses tariff income.
C Consumers pay a higher price, producers receive a higher price and the government receives tariff income.
D Consumers pay a lower price, producers receive a lower price and the government loses tariff income.

[1½]

25 A tariff is imposed on a specific good. Which group would benefit from the imposition of this tariff?

A Domestic consumers of the good
B Domestic producers of the good
C International producers of the good
D International consumers of the good.

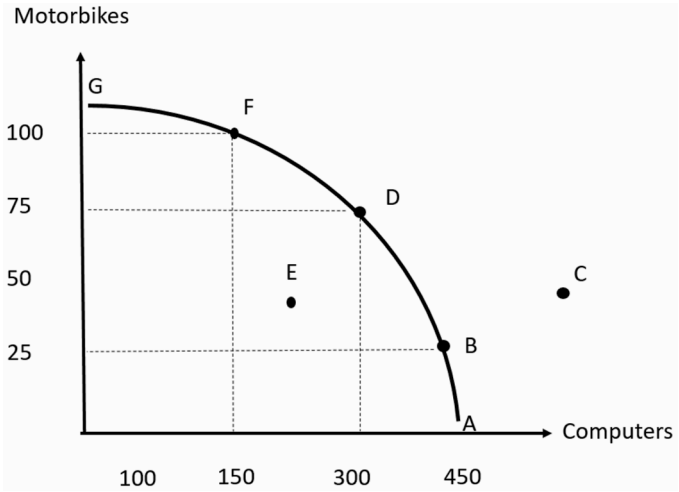
[1½]

26 If Canadian dollars are cheaper in Scotland than in Toronto, to benefit from the purchase and sale of foreign exchange Canadian dollars should be:

A purchased in Scotland and sold back in Toronto.
B purchased in Toronto and sold back in Scotland.
C sold in both Scotland and Toronto.
D purchased in both Scotland and Toronto.

[1½]

27 Given an endowment of resources, Country A can produce the following combinations of computers and motorbikes as shown in the diagram.



(i) Explain why the production possibility curve is drawn concave to the origin. [1]

(ii) Discuss the output decision at points C and E. [1]

(iii) State the opportunity cost of producing 25 more motorbikes from point D to point F. [1]

(iv) Explain whether point B is a preferable combination of output relative to point F from the consumer's perspective. [1]

[Total 4]

28 A pet food manufacturer produces tins of pet food using machinery alongside its employees. The table below shows the weekly level of output for the firm based on using either Machine A costing £600 per week or Machine B costing £1,200 per week, together with different numbers of employees.

Number of employees	*Machine A at £600 per week*	*Machine B at £1,200 per week*
1	4	11
2	7	17
3	17	30
4	30	45
5	44	56

(i) Calculate the average and marginal product of labour, assuming that the firm uses Machine A. [2]

(ii) Comment on whether the company using Machine A is experiencing increasing or diminishing returns. [1]

(iii) Calculate the firm's total cost, average total cost and average variable cost assuming that the firm uses Machine B and pays each employee £500 per week. [3]

[Total 6]

29 Describe how a specialist bakery currently producing cakes on a small scale could potentially experience economies of scale over time. [6]

30 Consider a hypothetical market where there are many health and fitness magazines for consumers to choose from.

'Fitness Champions' is initially priced at $0.45 and sells 442 copies at this price.

(i) Calculate the price elasticity of demand (using the point method) for 'Fitness Champions' if it were to reduce the price per copy to $0.30 and experienced a slight increase in sales to 456 copies. [2]

(ii) Explain the likely effect on revenue for the firm producing 'Fitness Champions' given your answer to part (i). [1]

(iii) Explain why a competitor magazine, 'Health World', who experienced a fall in the demand for its magazine following the price cuts by 'Fitness Champions' may also seek to reduce its price. [1]

(iv) Discuss why the company that produces the magazine 'Gym Fashion', specifically dedicated to sports apparel, has been able to maintain stable sales despite not changing its price in response to the price cut by 'Fitness Champions'. [2]

[Total 6]

31 Describe how a company that produces anti-malaria medication can charge different prices in different countries for the same product globally. [4]

32 In an economy where the expected rate of inflation is 0%, Odin is willing to lend if the interest rate is at least 6% and Freya would like to borrow money if the rate of interest is less than or equal to 6%. Assume no money illusion.

They agree to a loan between one another at the rate of 6%.

(i) State what the interest rate would be for Odin and Freya to agree a loan if the rate of inflation over the loan period was anticipated to be 5%. [1]

(ii) State what the rate of interest would be for Odin and Freya to agree a loan if the rate of inflation over the loan period was anticipated to be −3%. [1]

(iii) Calculate the range of interest rates that they would agree on a loan if Odin expected the rate of inflation to be 5% and Freya expected it to be 7%. [2]

[Total 4]

33 (i) Explain the impact that an increase in the interest rate payable on the national debt will have on the fiscal deficit. [1]

(ii) Explain why economists present the budget deficit as a proportion of GDP when analysing an economy. [1]

(iii) Explain why countries with a high general government debt tend to have to pay a higher rate of interest on their debt, other things being equal, than countries with a low general government debt. [3]

[Total 5]

34 Describe how the natural rate of unemployment could be reduced. [6]

35 (i) Describe the market structure that would most closely represent a dental practice operating in a large town. [5]

(ii) Propose how a dental practice in such circumstances could use non-price competition to secure its market share. [5]

[Total 10]

36 The market demand and supply for portable charging devices for mobile phones at each price in Country A, which has an open economy are shown in the table below. The industry in Country A competes with international suppliers of the device that can be imported at prices given below, but this industry is undeveloped compared to the international market.

Price (US$)	*Demand (000s)*	*Supply (000s)*
15	70	50
14	80	40
13	90	30
12	100	20
11	110	0
10	120	0
9	130	0

The world price for the devices, which has been US$13 for some time, has now fallen to US$10. As a result, domestic suppliers are lobbying the government in Country A to provide protection from international competition to enable them to develop the industry further and improve efficiency.

Describe the situation the industry faces in relation to its demand and supply in Country A under each of the following circumstances. In your answer, you should highlight the factors that the government in Country A should take into consideration were it to implement a policy of protectionism.

(i) prior to protectionism [3]

(ii) post-protectionism with a tariff of US$4 or an import quota restriction of 20,000 units. [7]

[Total 10]

END OF PAPER