INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

14 April 2021 (am)

Subject CB2 - Business Economics
Core Principles

Time allowed: Three hours and fifteen 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 If an 8% rise in the price of Good X results in a 4% fall in the quantity demanded of Good Y, then the cross elasticity of demand for Good Y is approximately:

A –2 and the two goods are complements.
B –0.5 and the two goods are complements.
C –2 and the two goods are substitutes.
D –0.5 and the two goods are substitutes.

[1½]

2 A production possibility frontier illustrates the limits on output of finished goods, as imposed by a limited supply of productive inputs. On the axes of the production possibility frontier, we place the:

A quantity of productive inputs.
B quantity of inputs on one axis and quantity of outputs on the other axis.
C quantities of finished goods.
D prices of productive inputs.

[1½]

3 For a profit maximising firm, fixed costs are £20, and the firm's normal profit is £10. The marginal costs of production are shown in the table below. The firm faces a horizontal demand curve when the price is £50. How much supernormal profit does the firm make?

Quantity produced	*Marginal cost (£)*
1	20
2	30
3	40
4	50
5	60
6	70

A £30
B £40
C £50
D £60.

[1½]

4 A firm's decision to reduce its expenditure on advertising is most likely to have the following impact on its demand curve:

A The curve will shift to the left and become less elastic.
B The curve will shift to the right and become less elastic.
C The curve will shift to the left and become more elastic.
D The curve will shift to the right and become more elastic.

[1½]

5 In an industry characterised by perfect competition:

A the average revenue is equal to marginal cost.
B the industry demand curve must be perfectly elastic.
C there may be difficulty for some firms in exiting the industry.
D there are no supernormal profits in the short run.

[1½]

6 Water is generally cheaper than diamonds when consumers are in equilibrium because the:

A total utility of water is less than the total utility of diamonds.
B total utility of water is greater than the total utility of diamonds.
C marginal utility of water is less than the marginal utility of diamonds.
D marginal utility of water divided by the marginal utility of diamonds, is greater than the price of water divided by the price of diamonds.

[1½]

7 Which of the following features is **NOT** a typical characteristic of oligopoly?

A A firm's fear that if it raises its price then the rise will be matched by competitors, but if it cuts its price then the cut will not be matched by competitors
B Supernormal profits
C A belief that one firm's actions has an influence on the actions of other firms
D Advertising and other non-price competition.

[1½]

8 A monopoly firm faces a linear demand schedule, has positive but constant marginal costs and is currently producing where its marginal cost is below its marginal revenue. If the firm wishes to maximise profits then it should:

A raise its price and increase output.
B lower its price and decrease output.
C lower its price and increase output.
D raise its price and decrease output.

[1½]

9 In the Cournot model of duopoly, when the two firms are at the equilibrium level of output:

A the joint output of the two firms is greater than the monopoly output, but less than the perfect competition output.
B the joint output of the two firms is identical to the monopoly output.
C the joint output of the two firms is identical to the perfect competition output.
D the output of the two firms will always be identical.

[1½]

10 Two firms operate in a duopoly but do not collude. Given the profit pay-off matrix of output options to firms A and B below, what is the dominant strategy for the firms?

		Firm B	
		Low	*High*
Firm A	*Low*	(50,50)	(10,70)
	High	(70,10)	(30,30)

Note: Profit pay-offs are (Profit A, Profit B) and 'high' and 'low' refer to the output decision.

A Firm A – High; Firm B – Low
B Firm A – High; Firm B – High
C Firm A – Low; Firm B – Low
D Firm A – Low; Firm B – High

[1½]

11 Which one of the following reveals decreasing returns to scale?

A If more labour is added to a given amount of capital, the marginal product of labour falls.
B If the ratio of labour to capital increases by 100%, the output of the firm increases by less than 100%.
C If the input of both capital and labour increases by 120%, the output of the firm increases by 100%.
D If more labour is added to a given amount of capital, the marginal product of labour rises.

[1½]

12 Good X has a price elasticity of demand of –1. Which of the following statements is TRUE, following the removal of a £10 per unit sales tax on Good X?

A The price of Good X will rise by £10.
B The price of Good X will fall by more than £10.
C The price of Good X will fall by less than £10.
D The price of Good X will fall by £20.

[1½]

13 Other things being equal, a fall in a monopolist's fixed costs of production, which does not lead to new entrants, causes:

A the market price to fall and the quantity supplied to rise.
B the market price to fall and the quantity supplied to fall.
C both market price and quantity supplied to fall.
D no change to the market price or output.

[1½]

14 Which one of the following is **NOT** a 'crowding out' effect resulting from a fiscal expansion?

A A fall in investment due to the associated rise in interest rates
B A fall in consumer demand due to fear of higher future taxes
C A fall in demand for exports due to an exchange rate appreciation caused by the associated rise in interest rates
D Reduced import expenditure due to increased government demand for domestically produced goods.

[1½]

15 If the money supply decreases due to a contractionary open market operation by the central bank, then the price of Treasury bills will:

A fall as the short-term interest rate falls.
B fall as the short-term interest rate rises.
C rise as the short-term interest rate falls.
D rise as the short-term interest rate rises.

[1½]

16 If the rate of income tax is cut from 30% to 25% while the marginal propensity to import falls from 20% to 15%, the effect on the open economy fiscal multiplier will be:

A a rise.
B a fall.
C no change.
D uncertain.

[1½]

17 The Phillips curve shows:

A the influence of fiscal policy on the level of inflation and unemployment.
B the influence of monetary policy on the level of inflation and unemployment.
C an inverse relationship between inflation and unemployment.
D a positive relationship between inflation and unemployment.

[1½]

18 An increase in the money supply will have a stronger impact on real output the more:

A elastic is the demand for money and the more interest elastic is the level of investment.
B inelastic is the demand for money and the less interest elastic is the level of investment.
C elastic is the demand for money and the less interest elastic is the level of investment.
D inelastic is the demand for money and the more interest elastic is the level of investment.

[1½]

19 If both government spending and the money supply are increased, and the economy has a high degree of unemployment, then:

A the national income and interest rates will both rise.
B the national income and interest rates will both fall.
C the effect on both national income and interest rates is uncertain.
D the national income will rise but the effect on interest rates is uncertain.

[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 none of the above.

[1½]

21 Which of the following costs of inflation occurs because of the possibility of unanticipated extra-high inflation?

A Fixed interest rate borrowers lose
B Menu costs
C Shoe-leather costs
D Fixed interest rate lenders lose.

[1½]

22 A short-run fall in real Gross Domestic Product (GDP) would result from an increase in all of the following with the exception of:

A autonomous saving.
B the marginal propensity to consume.
C the marginal propensity to import.
D the marginal rate of taxation.

[1½]

23 An unexpected increase in the price level, which causes a temporary reduction in the real wage rate, may:

A lead to an actual rate of unemployment that is temporarily greater than the natural rate.
B lead to an actual rate of unemployment that is temporarily lower than the natural rate.
C increase the natural rate of unemployment.
D decrease the natural rate of unemployment.

[1½]

24 The nominal rate of interest is 7% and the expected rate of inflation is 4%. Which one of the following is TRUE?

A The real rate of interest is negative.
B The rate of inflation is less than the real rate of interest.
C The real rate of interest is 11%.
D The nominal rate of interest exceeds the real rate of interest.

[1½]

25 Which of the following statements about the demand for money is FALSE?

A The demand for money is negatively related to the interest rate.
B The demand for money is positively related to nominal income.
C The demand for money is negatively related to the general price level.
D The demand to hold money is positively related to real income.

[1½]

26 Other things being equal, if there is an unexpected fall in money supply, there is no change in the expected rate of inflation and the unemployment rate is above the natural rate of unemployment, then the long-run Phillips curve would suggest that the inflation rate will eventually:

A fall and the unemployment rate would rise.
B fall and the unemployment rate would fall.
C rise and the unemployment rate would fall.
D rise and the unemployment rate would rise.

[1½]

27 (i) Explain how advertising can prove to be a useful mechanism for a firm producing laptop computers to increase its profits both in the short run and the long run. [4]

(ii) State how much advertising expenditure would be optimal for a profit maximising laptop computer producing firm to spend. [1]
[Total 5]

28 Hotel A and Hotel B are profit maximisers with the same weekly fixed costs. During the peak summer season they are both open. However, in the off-peak winter season, Hotel A remains open while Hotel B decides to close even though they both make a loss during the winter season.

(i) Explain the most likely reason why Hotel A remains open and Hotel B closes during the winter season by referring to their possible cost structures. [3]

(ii) Explain whether Hotels A and B will set their room prices in the region where their demand curves are price elastic or price inelastic making clear your reasoning. [2]
[Total 5]

29 You are given the following data for Good X:

Price of Good X ($)	*Demand for Good X*
18	1
16	2
14	3
12	4
10	5
8	6
6	7

(i) Calculate the point price elasticity of demand at the price of $16. [1]

(ii) State the price range over which the price elasticity of demand is equal to or less than one (in absolute value). [1]

(iii) Calculate the arc price elasticity of demand for a price rise from $8 to $12. [1]

A 4% price rise for Good Y leads to a fall in demand for Good X of 2%.

(iv) State whether Good X and Good Y are complementary or substitute goods. [1]

(v) Calculate the cross elasticity of demand for Good X with respect to Good Y. [1]

[Total 5]

30 Discuss the relevant barriers to entry that new entrants would be likely to face when seeking to enter the banking sector. [5]

31 (i) Explain, with the example of the car industry, the concept of ‘value added’ in terms of calculating GDP. [2]

(ii) Describe how inventories, government expenditure on education and owner-occupied housing are accounted for in measuring GDP using the product method. [3]

[Total 5]

32 You are given the following data for a Keynesian economy.

- Consumption expenditure is £300 million plus 70% of disposable national income.
- The tax rate is 25% of national income.
- Investment expenditure is £250 million.
- Government expenditure is £200 million.
- Export expenditure is £150 million.
- Imports are 15% of national income.

(i) Calculate the equilibrium level of national income. [2]

(ii) Calculate the level of consumption expenditure at the equilibrium national income. [1]

(iii) Calculate the surplus or deficit on the current account at the equilibrium national income. [1]

(iv) Calculate the fiscal surplus (+) or deficit (–) at the equilibrium national income. [1]

[Total 5]

33 (i) Describe what is meant by demand deficient unemployment, indicating how it is reflected in both the economy and labour market. [2]

(ii) Discuss the Keynesian economic policy recommendations regarding government intervention to bring an economy facing demand deficient unemployment closer to the desired level of full employment. [4]

[Total 6]

34 The following information is available about the labour market in a small country:

Real wage (£ per hour)	*Demand for labour*	*Will accept a job*	*Labour force*
9	560,000	400,000	490,000
10	520,000	440,000	520,000
11	480,000	480,000	550,000
12	440,000	520,000	580,000
13	400,000	560,000	610,000

Assume that, unless told otherwise, the real wage is flexible.

(i) State the number of voluntary unemployed at the equilibrium wage rate. [1]

(ii) State the level of involuntary unemployment if the wage rate is rigid at £1 per hour above the equilibrium wage. [1]

(iii) Explain the reason why the gap between the number who will accept a job and the labour force narrows as the wage rate rises. [1]

(iv) Assume that starting at the equilibrium wage, there is a cut in social security benefits. Explain what will happen to the equilibrium wage rate and total employment if, at any given wage per hour, there are extra workers prepared to accept a job than prior to the social security cut. [1]

(v) State the total level of employment if the government introduces a payment of £2 per hour to each employee at each level of the wage rate. [1]
[Total 5]

35 Discuss the similarities and differences between monopolistic competition and monopoly as market structures.

In your answer, you should include the likely advantages and disadvantages to consumers from these differing market structures. [10]

36 (i) (a) Explain how a central bank's ‘unconventional monetary policy’ of Quantitative Easing differs from a more traditional ‘conventional monetary policy’ of monetary expansion.

(b) Describe the likely short-term effects of the Quantitative Easing policy on the economy.

[4]

(ii) (a) Explain how a Quantitative Easing policy can be expected to influence the prices of differing financial securities in the financial markets, including the impact on government bonds, corporate bonds and equities.

(b) Comment on any problems for financial markets and the economy that a policy of Quantitative Easing may cause.

[6]
[Total 10]

END OF PAPER