

# INSTITUTE AND FACULTY OF ACTUARIES

## EXAMINATION

23 September 2020 (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 from the approved list.

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

- 1** Which of the following will NOT shift the supply curve for Good X to the right?
- A An increase in labour productivity in the industry producing Good X
  - B A fall in the price of raw materials used to produce Good X
  - C An increase in real wages in the industry producing Good X
  - D A government subsidy on the production of Good X.
- [1½]
- 2** Which of the following best describes the opportunity cost of producing Good X?
- A The cost of producing Good X in money terms
  - B The next best alternative use to which the factors of production used to produce Good X could be put
  - C The stream of services provided by Good X over its entire lifetime
  - D The production of Good X foregone in the previous year to enable Good X to be produced this year.
- [1½]
- 3** Under the Cournot model of duopoly, a firm:
- A attempts to maximise sales after assuming that the other firm will attempt to maximise sales.
  - B assumes the other firm will produce a given output and then chooses its profit-maximising output.
  - C assumes the other firm's price is given and then chooses its profit-maximising price.
  - D will attempt to collude with the other firm so as to set a price and output level that will maximise industry level profits.
- [1½]
- 4** Which of the following is NOT a feature of monopolistic competition?
- A Equilibrium price will be equal to marginal cost
  - B There are no barriers to entry
  - C Each firm produces a differentiated product
  - D Only normal profits are made in the long run.
- [1½]

- 5 Following an increase in the price of fuel, there is a 20% increase in the price of air travel tickets that results in a 20% decrease in total revenue.

Which of the following statements is TRUE about the demand for air travel?

- A It is price inelastic
- B It is price elastic
- C It is infinitely price elastic
- D It has zero price elasticity.

[1½]

- 6 A consumer uses 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 that 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 Goods X and Y.
- D decrease consumption of both Goods X and Y.

[1½]

- 7 When a consumer with a given income chooses between two goods with fixed prices, the slope of the budget line is equal to the:

- A ratio of the prices of the two goods.
- B income of the consumer divided by the price of each good.
- C ratio of the total utility of each good divided by the price of each good.
- D ratio of the total utilities of both goods.

[1½]

- 8 A perfectly competitive firm is currently producing 2,000 units of Good X per week that are sold at £3 per unit. The firm's total cost is currently £12,000 per week of which £4,000 is the fixed cost per week. The marginal cost of production is £3 per unit. To maximise profits or minimise losses, the firm should:

- A expand its output in order to increase its total revenue.
- B shutdown and produce no units of Good X in order to minimise its losses.
- C reduce its output to 1,000 units of Good X in order to reduce its total cost of production by £6,000.
- D continue producing 2,000 units of Good X in the short run but not in the long run.

[1½]

- 9 The short run supply curve for a firm in a perfectly competitive industry is its:
- A average cost curve.
  - B average variable cost curve.
  - C marginal cost curve above the lowest point of the average total cost curve.
  - D marginal cost curve above the lowest point of the average variable cost curve.

[1½]

- 10 The demand for Good X has a price elasticity of  $-3$  while the supply curve has a positive slope. If the government decided to impose a tax of £10 per unit on Good X, this would shift the supply curve for Good X up by:

- A less than £10 and increase the price by less than £10.
- B less than £10 and increase the price by more than £10.
- C £10 and increase the price by £10.
- D £10 and increase the price by less than £10.

[1½]

- 11 Which of the following is an example of economies of scope?

- A A firm doubles its inputs of capital and labour and its output more than doubles
- B A firm doubles the number of products it produces and also doubles its research budget
- C A firm produces a new product and in so doing lowers the average cost of producing its existing products
- D A firm produces a new product and lowers the price it charges on its existing products.

[1½]

- 12 Consider the following table:

<i>Units of capital</i>	<i>Units of labour</i>	<i>Output</i>
3	1	100
6	2	190
9	3	270
12	4	340
15	5	400

The table illustrates which one of the following?

- A Economies of scale
- B Constant returns to scale
- C Diseconomies of scale
- D Diminishing marginal productivity.

[1½]

- 13** An “inferior good” is defined as a good:
- A that will be bought by consumers only at a low price.
  - B whose quantity purchased will decline if consumers’ income rises.
  - C that is of poor quality compared to more expensive versions of the good.
  - D that is bought only by people on low incomes.
- [1½]
- 14** Which of the following would constitute a supply side economic policy for reducing unemployment?
- A Increasing social security benefits
  - B Increasing the money supply
  - C Reducing corporate and personal taxation
  - D Increasing government expenditure aimed at exploiting the multiplier effect.
- [1½]
- 15** An increase in the natural rate of unemployment will cause the long run Phillips curve to:
- A shift to the right.
  - B shift to the left.
  - C remain unchanged.
  - D become upward sloping.
- [1½]
- 16** According to Keynesian analysis, once a closed economy is in macroeconomic equilibrium such that planned savings equals planned investment, then:
- A there will be no unemployment in the economy.
  - B the marginal propensity to consume must be greater than the marginal propensity to save.
  - C consumption will be equal to or greater than income.
  - D there may or may not be unemployment.
- [1½]
- 17** An increase in the general price level with no change in the money supply will:
- A increase the demand for money and increase aggregate demand.
  - B decrease the demand for money and increase aggregate demand.
  - C increase the demand for money and decrease aggregate demand.
  - D decrease the demand for money and decrease aggregate demand.
- [1½]

- 18** Which one of the following statements about real variables in the economy is FALSE?
- A If nominal Gross Domestic Product (GDP) rises by 5%, then the real GDP may have risen, fallen or remained unchanged
  - B If the money supply falls by 20% and the price level falls by less than 20%, then the real money supply falls
  - C An increase in real income will lead to a rise in the demand for real money balances
  - D Real interest rates are positive if the expected rate of inflation is greater than the nominal rate of interest.
- [1½]

- 19** In a simple economy, consumption is given by the relationship:

$$C = 0.75 Y$$

where  $C$  is consumption expenditure and  $Y$  is Gross Domestic Product (GDP).

If government expenditure is £150 million, investment is £50 million and there is no taxation or international trade, the equilibrium value of GDP of the economy will be:

- A £200 million.
- B £312.5 million.
- C £1,000 million.
- D £800 million.

[1½]

- 20** In Country A, government expenditure is £350 billion, tax revenue is £275 billion, aggregate saving is £300 billion and aggregate investment is £250 billion. The net exports of Country A are equal to a:

- A surplus of £125 billion.
- B deficit of £125 billion.
- C surplus of £25 billion.
- D deficit of £25 billion.

[1½]

**21** The proportion of deposits held by the public as cash is 0.5 and the proportion of deposits held by the banks for reserves is 0.5. If the broad money supply is £300 million, what is the value of the narrow money supply?

- A £150 million
- B £200 million
- C £450 million
- D None of the above.

[1½]

**22** If the money supply increases due to an expansionary open market operation by the central bank, then the price of treasury bills will:

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

[1½]

**23** 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]

**24** You are given the following data for an economy:

	<i>£ million</i>
Consumer expenditure (including indirect taxes)	120
Investment	60
Government expenditure (including transfer payments)	70
Exports	40
Imports	30
Net income from abroad	20
Indirect taxes	10
Capital depreciation	20
Transfer payments	10

The value of the economy's Gross National Income at market prices is:

- A £250 million.
- B £260 million.
- C £270 million.
- D £280 million.

[1½]

- 25** Given the Gross Domestic Product (GDP) at basic prices cost we can calculate the GDP at market prices 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]
- 26** Which of the following statements is NOT correct in relation to Say's Law?
- A There will be demand deficient unemployment
  - B The production of goods will generate sufficient demand to ensure they are sold
  - C There may be structural unemployment or frictional unemployment if markets do not work efficiently
  - D Aggregate demand and aggregate supply will always be equal.
- [1½]
- 27** (i) Describe the characteristics of an oligopolistic market structure. [2]
- (ii) Explain four characteristics of an oligopolistic market structure that differ from the characteristics of a monopoly market structure. [3]
- [Total 5]
- 28** Describe using examples the impact of government intervention in the market by imposing price ceilings and price floors. [6]

- 29** Consider the following Companies A to E where each is an individual firm operating under a specific market structure.

<i>Company</i>	<i>Marginal cost</i>	<i>Average cost</i>	<i>Average revenue</i>	<i>Marginal revenue</i>
A	10	10	10	10
B	12	9	12	12
C	15	18	20	15
D	9	14	20	14
E	25	20	20	10

- (i) State which company has a short run equilibrium output that may be that of a profit maximising monopolist. [1]
- (ii) Give ALL the companies that are making excess profits. [1]
- (iii) Give ALL the companies that could expand their output and increase their profits. [2]
- (iv) Give ALL the companies that could be operating in a perfectly competitive environment. [1]
- [Total 5]

- 30** (i) Describe how equilibrium wage rate and the resulting employment and unemployment are determined in the labour market. [3]
- (ii) Describe the impact on employment and unemployment if the real wage rate is set above the equilibrium level. [3]
- [Total 6]

**31** You are given the following information on an open economy:

Consumption expenditure =  $0.6Y_d$

Investment expenditure = £200 million

Government expenditure = £400 million

Exports = £100 million

Imports =  $0.3Y$

The rate of taxation is 50% of all income, where  $Y$  is national income and  $Y_d$  is disposable income.

- (i) Calculate the equilibrium level of national income. [2]
  - (ii) Calculate the equilibrium level of consumption expenditure. [1]
  - (iii) Calculate the fiscal budget surplus/deficit at the equilibrium level of national income. [1]
  - (iv) Calculate the current account surplus/deficit at the equilibrium level of national income. [1]
- [Total 5]

- 32**
- (i) Describe what the LM curve represents. [2]
  - (ii) Describe two factors that may shift the LM curve to the right in a closed economy. [2]
- [Total 4]

- 33** You are given the following data on Country A, which is a simple closed economy with no government expenditure or taxes:

<i>Income (€ million)</i>	<i>Planned consumption (€ million)</i>	<i>Planned investment (€ million)</i>
200	140	60
250	175	60
300	210	60
350	245	60
400	280	60

- (i) State the amount of planned savings at the equilibrium level of income. [1]
- (ii) Calculate the amount of unplanned additions to stocks if the level of income is €200 million. [1]
- (iii) State whether aggregate demand exceeds income when income is €200 million. [1]
- (iv) Calculate the increase in the equilibrium level of income if planned investment rises from €60 million to €90 million. [2]
- [Total 5]
- 34** Discuss the monetarist proposition that in the long run monetary policy can affect the inflation rate but not the unemployment rate. [5]
- 35**
- (i) Describe how the growth of international trade can benefit a country and the firms that operate within it. [5]
- (ii) Describe, in your own words, the key rules of the World Trade Organization on international trade. [5]
- [Total 10]
- 36**
- (i) Explain why control of inflation has been a major policy objective of governments in both developed and developing economies. [5]
- (ii) Explain how a policy to control inflation may conflict with the attainment of other macroeconomic objectives. [5]
- [Total 10]

**END OF PAPER**