

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname *StemUp Model Solution*

Forename(s)

Candidate signature

I declare this is my own work.

INTERNATIONAL A-LEVEL ECONOMICS

Unit 3 The Economics of Business Behaviour and the Distribution of Income

Friday 5 January 2024

07:00 GMT

Time allowed: 2 hours

Materials

For this paper you must have:

- the Source Booklet, provided as an insert (enclosed)
- a calculator, which you are expected to use where appropriate.

Instructions

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions in **Sections A, B and C**.
- Answer **EITHER** Question 15 **OR** Question 16 in **Section D**.
- You must answer the questions in the spaces provided. Do **not** write outside the box around each page or on blank pages.
- Do **not** write in the Source Booklet.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 90.
- You may use a bilingual dictionary for this exam.
- You may **not** use an English dictionary.

For Examiner's Use	
Question	Mark
1–10	
11	
12	
13	
14	
15	
16	
TOTAL	



J A N 2 4 E C O 3 0 1

Section A

Answer **all** questions in the spaces provided.

Only **one** answer per question is allowed.

For each question completely fill in the circle alongside the appropriate answer.

CORRECT METHOD



WRONG METHODS



If you want to change your answer you must cross out your original answer as shown.



If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown.



0 1

Relative poverty is best defined as where

[1 mark]

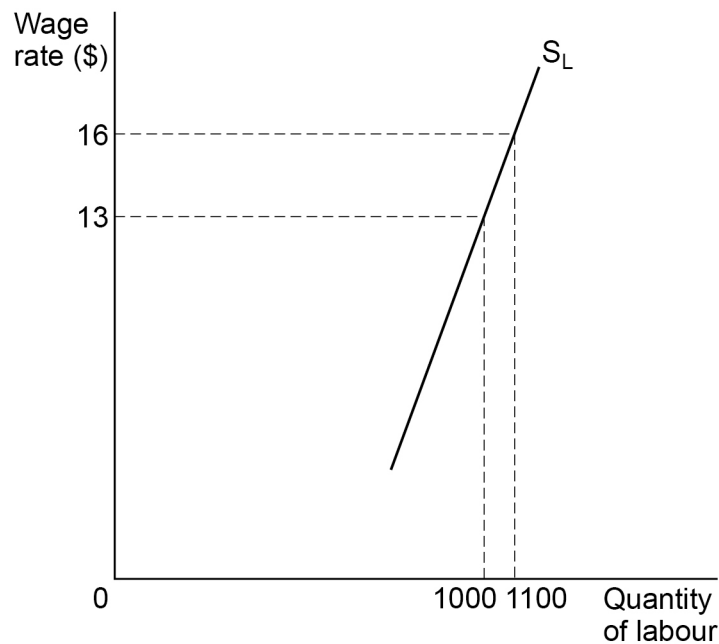
- A** a worker is paid less than a similar worker doing a different job.
- B** a worker is paid less than another worker doing the same job with the same skills.
- C** an individual does not receive enough income to satisfy their basic needs.
- D** an individual receives less than a certain percentage of a country's average income.



0 2

Figure 1 shows the change in the supply of labour to an industry when the wage rate rises from \$13 per hour to \$16 per hour.

Figure 1



Which one of the following is most likely to have caused the increase in the supply of labour to the industry?

[1 mark]

- A** Demand for the industry's products has increased
- B** The industry offers high levels of non-monetary benefits
- C** Very low levels of skills are required in the industry
- D** Workers can move into the industry very easily

☒
☐
☐
☐

Turn over for the next question

Turn over ►



0 3

Esteban enjoys eating biscuits. **Table 1** shows the average utility he obtains from consuming different quantities of biscuits on a particular day.

Table 1

Number of biscuits consumed	Average utility (units)
5	23
6	20
7	17
8	14

If Esteban wishes to maximise the total utility he obtains from eating biscuits, how many biscuits should he eat that day?

[1 mark]

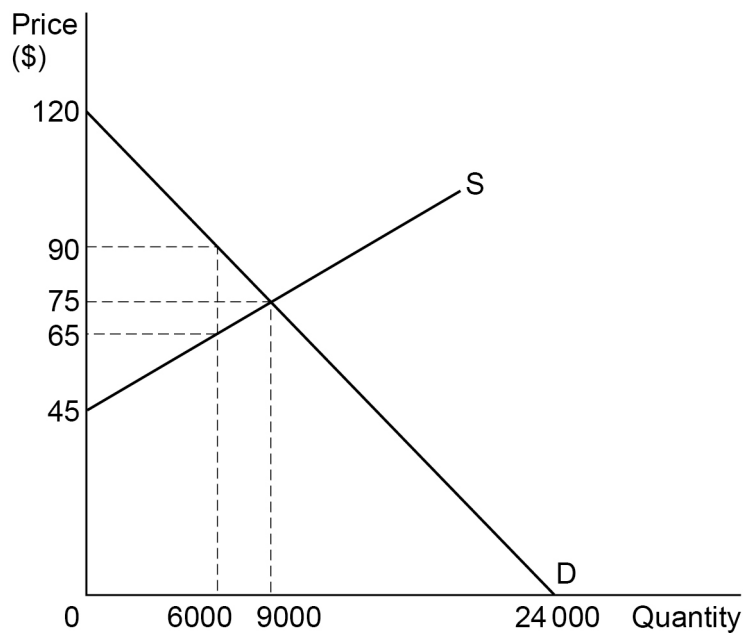
- A** 5 ☐
- B** 6 ☒
- C** 7 ☐
- D** 8 ☐



0 4

Figure 2 shows the supply (S) and demand (D) curves for a perfectly competitive market. This market then becomes a monopoly.

Figure 2



If the monopolist charges a price of \$90, what is the deadweight loss?

[1 mark]

- A** \$37 500 ☒
- B** \$75 000 ☐
- C** \$90 000 ☐
- D** \$112 500 ☐

0 5

In which one of the following market structures is non-price competition most likely to be a common feature?

[1 mark]

- A** Monopolistic competition ☒
- B** Monopsony ☐
- C** Perfect competition ☐
- D** Pure monopoly ☐

Turn over ►



0 6

A school pays female teachers 30% less than male teachers. Both female and male teachers do the same job and have the same skills.

Which one of the following is the most likely reason why the school is able to pay its female and male teachers a different wage for doing the same job?

[1 mark]

A Demand for teachers is highly wage inelastic

☐

B The marginal revenue product of teachers is low

☐

C There are no other schools in the area

☒

D Unemployment for teachers is low

☐
0 7

Table 2 shows four different values of the Gini coefficient.

Which one of the following values of the Gini coefficient shows the highest possible level of income inequality?

[1 mark]**Table 2**

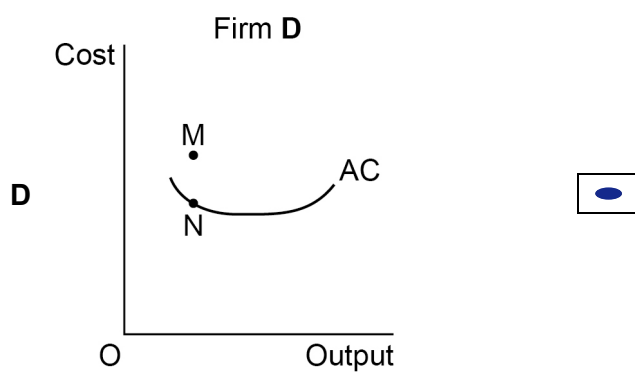
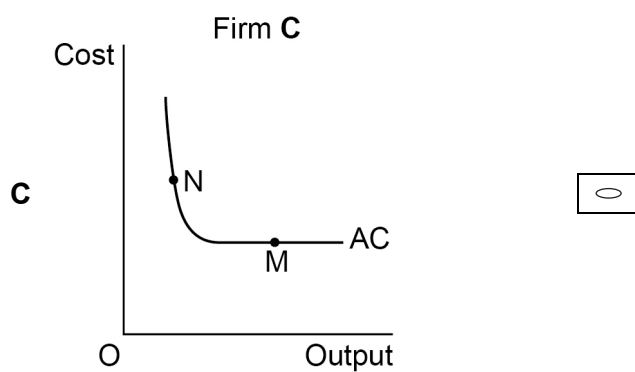
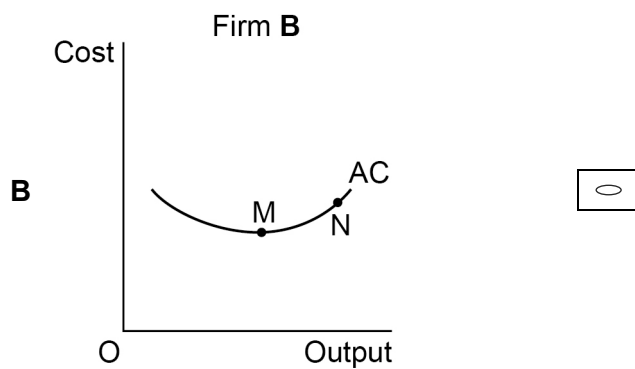
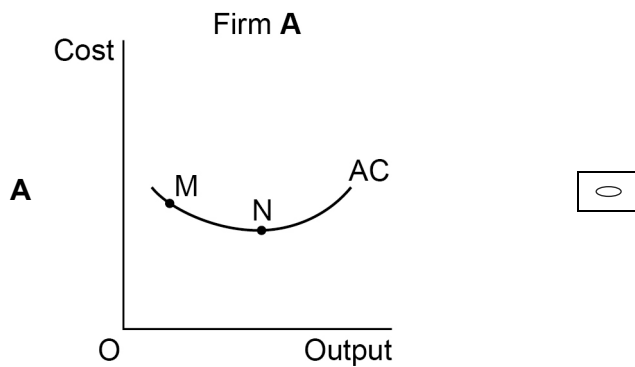
	Gini coefficient	
A	-1.0	☐
B	0.0	☐
C	1.0	☒
D	2.0	☐



0 8

The diagrams show the average cost (AC) curves for four different firms.

Which diagram shows a firm that has become X-efficient as a result of moving from point M to point N?

[1 mark]**Turn over ►**

0 9

Vertical integration has taken place between two firms.

Which one of the following is the most likely reason for vertical integration between firms?

[1 mark]

A To gain greater market concentration

☐

B To gain more control over supplies of materials

☒

C To reduce the risk of a free-rider problem occurring

☐

D To reduce the risk of diseconomies of scale

☐

1 0

Table 3 shows how a firm's total product changes, in the short run, when it employs different numbers of workers.

Table 3

Number of workers	Total product
9	421
10	512
11	607
12	700
13	787

Diminishing marginal returns begin to occur when the firm employs

[1 mark]

A the 10th worker.

☐

B the 11th worker.

☐

C the 12th worker.

☒

D the 13th worker.

☐

10



Section B

Answer **all** questions in the spaces provided.

1	1	.	1
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Define 'normal profit'.

[2 marks]

Normal profit is the minimum level of profit needed to persuade the owner to keep the firm in the market. It occurs when total revenue just covers total costs (including opportunity cost), i.e. $AR = AC$.

Question 11 continues on the next page

Turn over ►



1 1 . 2 Cem runs a firm that sells luxury holidays.

Table 4 shows his revenues and costs from selling different quantities of holidays in a month.

Table 4

Quantity of holidays sold	Average revenue (\$)	Marginal revenue (\$)	Average variable cost (\$)
4	16 000	11 000	
5	15 000		
6		9 000	5 500

Calculate the marginal revenue Cem receives from selling the fifth holiday.

You are advised to show your working.

[2 marks]

$$\text{Total revenue from 4 holidays} = 4 \times \$16\,000 = \$64\,000$$

$$\text{Total revenue from 5 holidays} = 5 \times \$15\,000 = \$75\,000$$

$$\text{MR of the fifth holiday} = \$75\,000 - \$64\,000 = \$11\,000$$



1 1 . 3

Use **Table 4** to calculate the amount of profit Cem will earn from selling six holidays if his fixed costs are \$30 000 each month.

You are advised to show your working.

[2 marks]

$$\begin{aligned} \text{Total revenue from 6 holidays} &= (5 \times \$15\,000) + \$9\,000 = \$75\,000 + \$9\,000 \\ &= \$84\,000 \end{aligned}$$

$$\begin{aligned} \text{Total cost} &= \text{total variable cost} + \text{fixed cost} = (6 \times \$5\,500) + \$30\,000 = \\ \$33\,000 + \$30\,000 &= \$63\,000 \end{aligned}$$

$$\text{Profit} = \text{TR} - \text{TC} = \$84\,000 - \$63\,000 = \$21\,000$$

Question 11 continues on the next page

Turn over ►



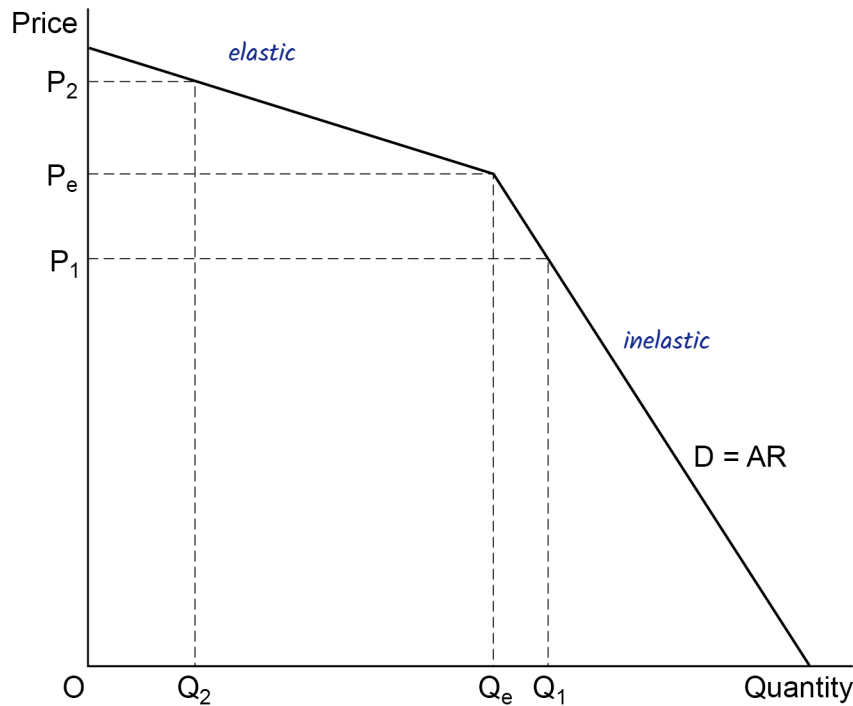
1 1 . 4

Figure 3 shows the kinked demand curve model of oligopoly.

Explain, using **Figure 3**, why the kinked demand curve model suggests that prices are likely to be stable in an oligopolistic market.

[4 marks]

Figure 3



The model assumes rivals react asymmetrically. If the firm raises its price above P_e to P_2 , rivals will not follow, as they gain market share, so demand is price elastic above the kink and quantity falls sharply from Q_e to Q_2 , so total revenue falls. If the firm cuts its price to P_1 , rivals copy it to protect their sales, so demand is price inelastic below the kink and quantity rises only slightly from Q_e to Q_1 , so total revenue again falls. Since any price change up or down reduces revenue, the firm has no incentive to move from P_e and prices stay stable (the MR curve also has a gap at Q_e , so MC can change without changing price).



Section C

Look at the Source Booklet and answer **all** questions in the spaces provided.

Do **not** write in the Source Booklet.

1 2

Extract A shows an index of average prices for Australian domestic air travel and the average annual price of oil, from which aircraft fuel is produced.

1 2

. 1

Explain how the price of oil may affect the price of air travel.

[4 marks]

Oil is the raw material from which aircraft fuel is made, so the demand for oil by airlines is a derived demand from the demand for air travel. Fuel is one of the largest costs of production for an airline, and there are few substitutes for it, so airlines' demand for fuel is price inelastic. When the market price of oil rises, for example because world demand for oil increased after Covid restrictions were lifted, the cost of fuel rises. This shifts the supply curve of air travel to the left, as airlines need a higher price to cover their higher costs, so the price of air travel rises and fewer flights are sold. A fall in oil prices would reduce costs and allow airlines to cut fares. How much of the cost is passed on depends on the price elasticity of demand for flights.

Question 12 continues on the next page

Turn over ►



1 2 . 2

To what extent do the data suggest that the price of oil affected the price of domestic air travel in Australia between 2015 and 2022?

Use the data in **Extract A** to support your answer.

[4 marks]

Some data support a link: from 2021 to 2022 oil rose from \$63.14 to \$87.95 (39.3%) and the air travel price index rose from 70.9 to 84.4 (19.0%); prices also moved in the same direction between 2016 and 2019. However, from 2015 to 2016 oil fell from \$51.84 to \$45.54 (-12.2%) but the index rose from 79.6 to 80.0 (0.5%), and they also moved in opposite directions from 2019 to 2021. Over the whole period oil rose by 69.7% but the index rose by only 6.0%. The sharp fall in oil in 2020 only showed in fares a year later, suggesting a time lag as airlines buy fuel in advance. Fuel is only one cost, and demand, competition and the A\$ exchange rate also affect fares. Overall, the data suggest oil had only a weak, inconsistent effect on the price of air travel.

8



1 3

Extract B (lines 8–9) states: ‘During these two years, wage rates stayed the same, but began to rise significantly in 2022.’

Explain possible reasons why wage rates in the Australian airline industry may have risen in 2022.

[12 marks]

The wage rate is the price of labour per hour, determined by the demand for and supply of labour in the industry. As the diagram shows, wages rise from w_1 to w_2 if demand for labour increases (D_1 to D_2) and/or supply decreases (S_1 to S_2).

The demand for labour is a derived demand, coming from the demand for air travel. Firms hire workers until the wage equals their marginal revenue product ($MRP = MPP \times MR$). In 2020 and 2021 Covid travel restrictions meant few people flew, so MRP was low and wages stayed the same. When restrictions were lifted in 2022, pent-up demand for flights rose sharply, raising the price of tickets and the MRP of pilots, cabin crew and baggage handlers. New airlines entering the market and existing ones expanding their routes also increased demand for staff. Airlines may also have needed more staff, or to pay overtime, to cover Covid-related absences. Since Australia's geography means there are few alternatives to domestic flights, demand for air travel is price inelastic, so airlines could pass higher wage costs on in fares, making the demand for labour wage inelastic.

At the same time, the supply of labour fell. Many staff who lost their jobs in 2020 and 2021 found work in other industries and did not return, and other countries reopened more quickly, so some Australian staff left to work for overseas airlines, where international competition for labour pushed pay up.

Staff isolating with Covid further reduced the number available. Supply is also wage inelastic in the short run, as pilots and engineers need long training and licences, and there is little scope to substitute capital for labour, so wages rise

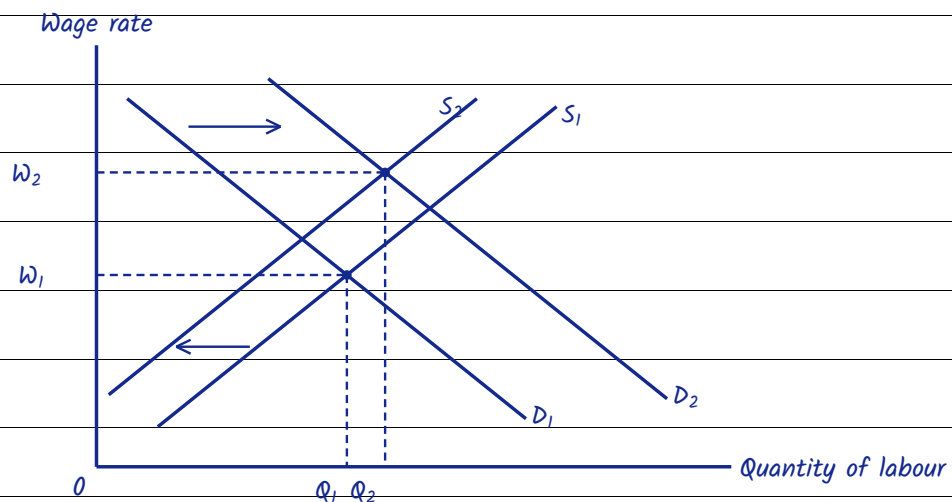
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Extra space *sharply.*

Finally, trade unions may have used their bargaining power to win higher pay, after two years with no rise, especially as inflation in 2022 cut real wages and raised expectations of future inflation. Because airline staff are skilled and hard to replace, a strike would be costly, strengthening the unions' position.

How much wages rise depends on the elasticities of demand for and supply of labour. Because qualified pilots, engineers and air traffic staff are essential and cannot easily be replaced by machines, both curves are wage inelastic, so the shifts cause a large rise in wages and only a small rise in employment. The most important reason is probably the sudden recovery in demand for flights in 2022 at a time when the supply of trained staff had shrunk, since this both raised MRP and created shortages that strengthened workers' bargaining power.



1 4

Extract C (lines 1–2) states: 'The Australian airline industry is dominated by one large firm, Qantas Group, which used to be state owned. In 2022, Qantas had a market share of about 65%.'

Assess whether consumers are likely to benefit from the market structure of Australia's airline industry.

[25 marks]

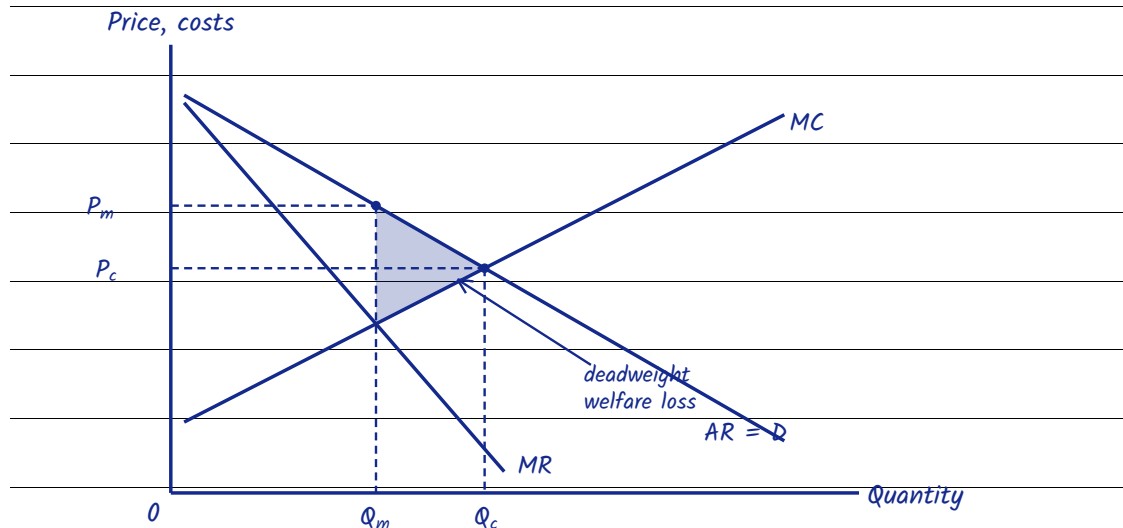
A market structure is the characteristics of a market, such as the number and size of firms, barriers to entry and the degree of product differentiation. With Qantas holding about 65% of the market and Virgin Australia most of the rest, the industry is a highly concentrated oligopoly in which Qantas has a high degree of monopoly power.

Consumers may lose from this structure. As the diagram shows, a firm with monopoly power maximises profit where $MR = MC$, producing Q_m at price P_m , rather than Q_c at P_c as in a competitive market. Fares are higher, fewer flights are offered and there is less choice of airline and routes, so consumer surplus is transferred to the airline and there is a deadweight welfare loss: the market is allocatively inefficient ($P > MC$). Airlines can also price discriminate, charging business travellers and those booking late much higher fares because their demand is price inelastic, turning consumer surplus into supernormal profit. Without competitive pressure a dominant firm may also become X-inefficient and productively inefficient, letting costs and delays rise and service quality fall, with consumers paying for this waste through higher prices.

However, consumers may also benefit. Airlines have very high fixed costs, such as aircraft, so a large firm like Qantas can gain economies of scale, for example bulk-buying discounts on new aircraft and fuel, and spreading maintenance and marketing costs over more passengers. If lower average costs are passed on, fares could be lower than if many small airlines served the market, which is especially important for long domestic routes. In addition, supernormal profits can be retained and used for investment and R&D, so the

Turn over ►





Extra space *firm is dynamically efficient. This could bring faster journey times, safer and quieter aircraft with less environmental impact, shorter queues, fewer delays, Wi-Fi and better in-flight service. Firms in an oligopoly often compete through non-price competition such as loyalty schemes and service quality rather than price, which may benefit consumers.*

These benefits are not guaranteed, however. Economies of scale only help consumers if cost savings are passed on as lower fares rather than kept as supernormal profit, which is less likely when there is little competition. A very large firm may also suffer diseconomies of scale, such as poor communication and industrial disputes. Similarly, supernormal profit may be paid out to shareholders as dividends rather than invested. On thin regional routes, though, demand may only be large enough for one airline to cover its costs, so a dominant firm may be the only way these communities get any service at all, which is a clear benefit to those consumers. In an oligopoly with two main firms there is also a risk of tacit collusion, which would remove the benefits of rivalry.

Whether consumers benefit largely depends on how contestable the market is. Barriers to entry are high, as airport landing slots are scarce and starting an



airline needs huge sunk costs. However, if new entrants have joined the market recently, and international airlines could compete on domestic routes, the threat of entry would force Qantas to keep fares close to average cost and keep improving quality. If it exploits consumers and earns abnormal profits, this may attract entrants, a process of creative destruction. If entry is blocked, consumers are likely to lose.

It also depends on Qantas' objectives. Since privatisation it is owned by shareholders who want profit, which gives an incentive to cut costs and become more efficient than it was when state owned, but also to exploit its market power. The degree of product differentiation matters too: if its power comes from a reputation for safety and service, consumers gain from that quality.

Regulation and competition policy are also important: if the competition authority can investigate abuse, block mergers and prevent collusion between the two large airlines, the risk of exploitation is reduced. Finally, the impact differs between consumers: price discrimination means low-income leisure travellers who book early may pay low fares, while business travellers pay much more.

In conclusion, I judge that consumers are only likely to benefit if the market is contestable and well regulated. Economies of scale and dynamic efficiency are real advantages in an industry with such high fixed costs, but with a 65% market share the incentive to exploit consumers through higher fares and less choice is strong. On balance, consumers probably lose from the current structure unless entry by new and foreign airlines and effective competition policy keep Qantas' power in check.



Section D

Answer **EITHER** Question 15 **OR** Question 16.

Shade the circle below to indicate which optional question you have answered.

Question 1 5 ☐Question 1 6 ☒CORRECT METHOD ☒

WRONG METHODS

**Either**

1 5

A large firm operating in a number of countries is bought by a very wealthy individual. They become both its biggest shareholder and its Chief Executive, the person responsible for managing the company. This is unusual for such a large firm. The new owner wants the firm to make as much profit as possible.

Discuss whether large firms are more likely to aim to maximise profits than small firms.

[25 marks]**or**

1 6

Between 2011 and 2019, Brazil's Gini coefficient showed high, and rising, income inequality and its real GDP per capita fell from \$8935 to \$8592. During the same time, El Salvador's Gini coefficient showed that the distribution of income became more equal and the country's real GDP per capita rose from \$3488 to \$4105.

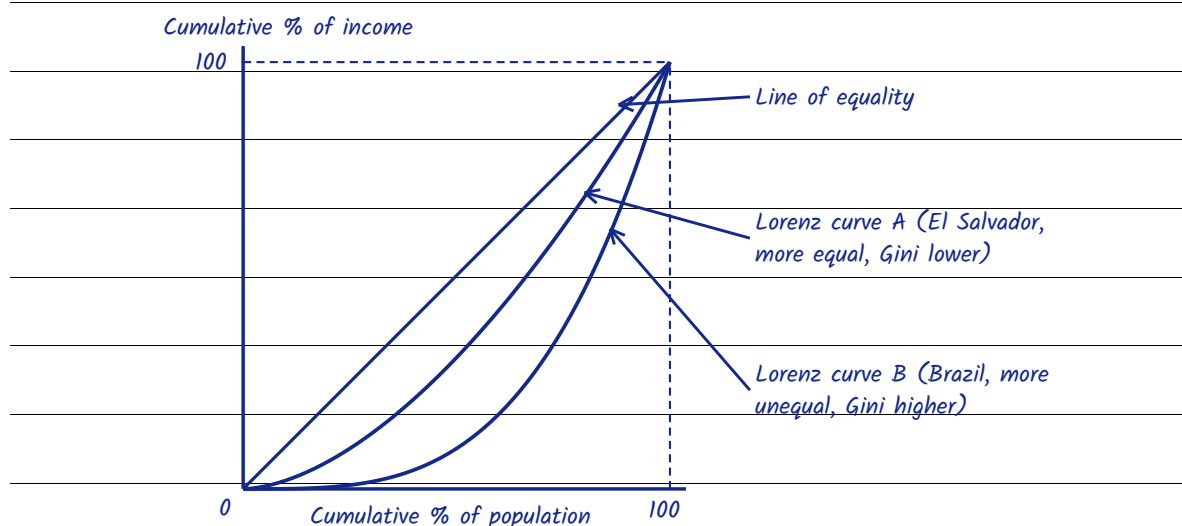
Assess the likely costs and benefits of having a more unequal distribution of income.

[25 marks]

An unequal distribution of income means that a large share of national income goes to a small proportion of households. It is shown by a Lorenz curve and measured by the Gini coefficient, the ratio of the area between the line of equality and the Lorenz curve to the total area below the line of equality, from 0 (perfect equality) to 1. As the diagram shows, Brazil's rising inequality means its Lorenz curve lies further from the line of equality.

There are benefits from some inequality. In a market economy, income differences act as incentives: higher pay for skilled and productive work encourages people to work harder, gain qualifications and move to jobs where their marginal revenue product is highest. High wages for scarce skills also act as a signal, giving labour





market information about which skills the economy needs. The prospect of high profits rewards entrepreneurs for taking risks, encouraging enterprise, innovation and investment. Because high-income groups save more, inequality may provide more saving to fund investment and job creation, raising productivity and long-run economic growth. Supporters argue that this growth then trickles down to poorer groups through more jobs and higher wages. With a progressive tax system, more income at the top can also mean higher direct tax revenue to pay for public services.

However, there are significant costs. Greater inequality usually means more relative poverty. Low-income households may be unable to afford a decent diet, housing or merit goods such as education and health care, so they suffer worse health and their children gain fewer skills. This reduces human capital and productivity, so the poorest may be trapped in a cycle of low pay. As high incomes allow the rich to save and build wealth, income inequality also leads to wealth inequality, which then generates more unearned income such as rent and dividends, so inequality becomes self-perpetuating across generations.

Inequality can also reduce economic activity. Rich households have a lower marginal propensity to consume than poor ones, so when income is concentrated in a small

Turn over ►



group, total consumer spending and aggregate demand may be lower, and indirect tax revenue such as VAT may fall. The government also faces an opportunity cost: it has to spend more on benefits and support for those the market leaves with very low incomes, money that could have been spent on infrastructure or education. Resources may be misallocated if the wealthy spend on luxury goods while low-income groups go without necessities, and if low-income groups feel excluded there may be social problems such as crime and political instability, which deter investment.

Inequality is also linked to market failure. If low-income households under-consume merit goods such as education and health care, positive externalities are lost, and if

Extra space the very poor cannot borrow to invest in their own skills, talent is wasted. In this sense inequality can be both a result of market failure, such as monopsony or discrimination keeping wages low, and a cause of it. On the other hand, attempts to reduce inequality through very high marginal tax rates and generous benefits may reduce incentives to work and invest, and could lead to a brain drain of skilled workers, so redistribution also has costs.

The data in the question suggest that these costs can outweigh the benefits.

Between 2011 and 2019 Brazil's inequality rose but its real GDP per capita fell from \$8935 to \$8592 (a fall of 3.8%), while El Salvador became more equal and its real GDP per capita rose from \$3488 to \$4105 (17.7%). This does not support the idea that more inequality creates growth. However, correlation is not causation:

Brazil had a deep recession in 2015 to 2016 and both countries were affected by many other factors such as commodity prices and government policy. El Salvador started from a much lower income, so it had more scope for catch-up growth.

Evaluating the overall effect, it depends on the cause of the inequality. If high incomes are earned through skill, effort and enterprise, inequality is more likely to be seen as fair and to bring incentive benefits. If they come from inherited wealth,



monopoly power or discrimination, they are less fair and bring few incentive benefits. It also depends on the degree of inequality: a moderate level may be needed for a market economy to work, but beyond a certain point a very unequal distribution becomes counter-productive, as poverty wastes human potential and weakens demand. Many economists argue that equality of opportunity, through access to education and health care, matters more than equality of income, since it keeps incentives while letting everyone develop their skills. The role of government matters: a progressive tax and benefit system can reduce the costs of inequality while keeping most of the incentive benefits. Finally, the desired level of inequality is a normative judgement for each government and society to make.

In conclusion, a more unequal distribution of income can bring benefits through incentives, saving and enterprise, but in an economy that is already very unequal, such as Brazil, the costs of greater poverty, lower human capital, weaker demand and social tension are likely to outweigh them. I judge that the benefits only exceed the costs when inequality is moderate, results mainly from differences in effort and skill, and is accompanied by equality of opportunity and a safety net for the poorest.

END OF QUESTIONS



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ANSWER IN THE SPACES PROVIDED**



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2 8



2 4 1 X E C 0 3