

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

Wednesday 11 June 2025

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 U N 2 5 E C 0 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

Decisions made by consumers are often influenced by rules of thumb.

Which one of the following best describes a rule of thumb?

[1 mark]

A A rational approach that is used by consumers to ensure they maximise their utility



B A way of thinking, based on experience, that consumers use to make decisions quickly



C An approach to decision making that is influenced by what is considered acceptable in society



D Consumers relying too much on the first piece of information they receive about a product



0 2

A journalist makes two statements, **Statement 1** and **Statement 2**, about a country's economy.

Statement 1: A 5% decrease in the Gini coefficient for income will lead to a 3% decrease in spending.

Statement 2: A decrease in the Gini coefficient for income means that the distribution of income is fairer.

Which one of the following combinations describes these two statements?

[1 mark]

	Statement 1	Statement 2	
A	Normative	Normative	☐
B	Normative	Positive	☐
C	Positive	Normative	☒
D	Positive	Positive	☐

Turn over for the next question

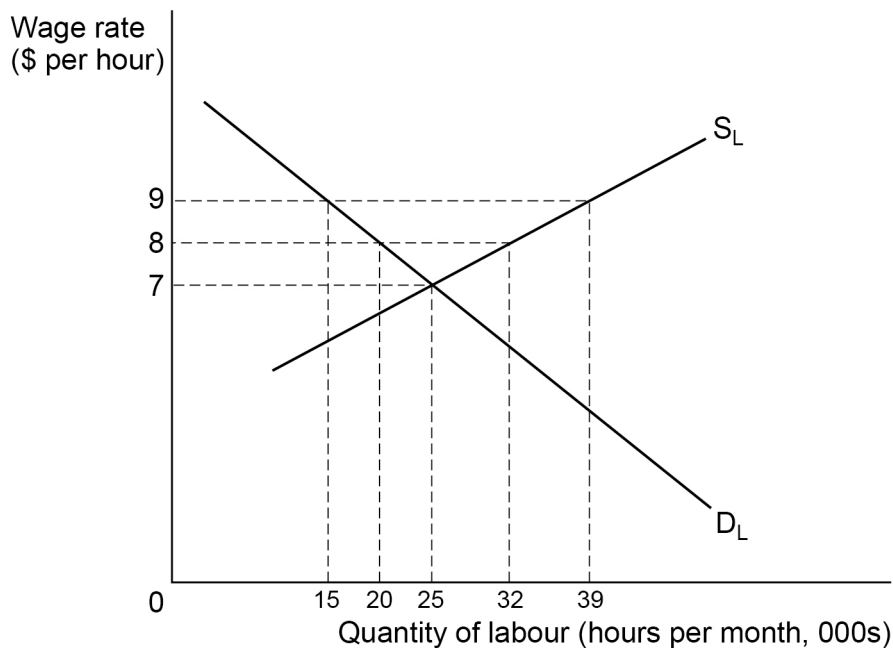
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0 3

Figure 1 shows the demand for labour (D_L) and supply of labour (S_L) in a labour market.

Figure 1



All other things being equal, which one of the following will result if the minimum wage rate is increased from \$8 to \$9 per hour?

[1 mark]

- A** Employment will fall by 12 000 hours per month
- B** The total wage costs per month would decrease by \$40 000
- C** The total wage costs per month would increase by \$95 000
- D** Workers would be willing to work 7000 more hours per month

☐
☐
☐
☒

0 4

Firms in a market are most likely to experience hit-and-run competition if

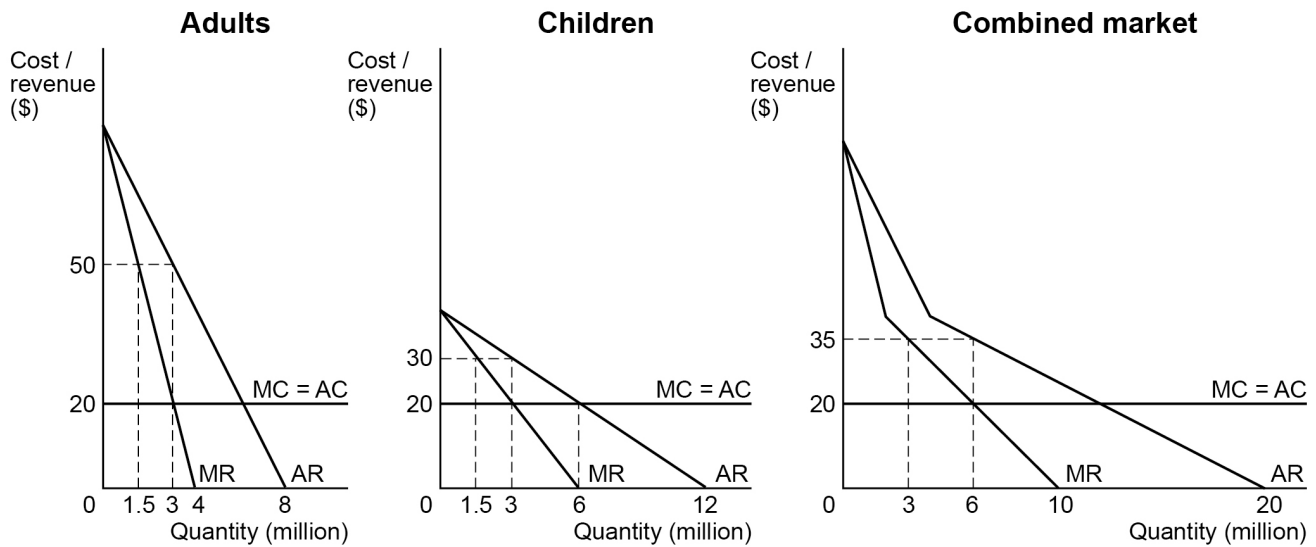
[1 mark]

- A** firms are making normal profits in the short run.
- B** the market has a very high minimum efficient scale.
- C** there are few barriers to leaving the market.
- D** there are high sunk costs and a high concentration ratio.

☐
☐
☒
☐


0 5

Figure 2 shows the expected cost and revenue curves for adults, children and the combined market for a profit-maximising firm that owns theatres.

Figure 2

The firm currently charges the same price to all customers. However, it is considering setting lower prices for children compared to those it sets for adults. By how much will the firm's profits increase if they price discriminate between children and adults?

[1 mark]**A** \$15 million☐**B** \$30 million☒**C** \$120 million☐**D** \$240 million☐**Turn over for the next question****Turn over ►**

0 6

Table 1 shows the quantity of land, labour and capital that the owner of a potato farm could use to produce two different levels of output.

Table 1

Units of land	Units of labour	Units of capital	Output (kg)
2	3	5	12 000
4	6	10	22 000

Which one of the following results, in the long run, if the farmer increases output from 12 000kg to 22 000kg?

[1 mark]**A** Decreasing returns to scale☒**B** Decreasing total returns☐**C** Diminishing marginal productivity☐**D** Diminishing marginal returns☐**0 7**

A firm in an oligopolistic market creates a new product and uses a patent to protect it.

Which one of the following is the most likely result of the patent being granted?

[1 mark]**A** A reduction in the firm's ability to set prices☐**B** The firm loses its intellectual property rights☐**C** The market becomes less contestable☒**D** The product becomes excludable☐

0 8

Sunarti owns a firm that makes bags. The price elasticity of demand for the bags is -0.9 . If she decreases the price of the bags, her weekly sales will increase from 15 to 16 bags.

All other things being equal, which one of the following will result from this decrease in price?

[1 mark]

A Average revenue will increase

☐

B Marginal revenue will be negative

☒

C Total profits will increase

☐

D Total revenue will remain constant

☐
0 9

Table 2 shows the average utility that Juan receives from eating 3, 4 and 5 chocolate bars.

Table 2

Number of chocolate bars	Average utility (units)
3	33
4	30
5	25

How much marginal utility does Juan gain from eating the 4th chocolate bar?

[1 mark]

A -3 units

☐

B 5 units

☐

C 21 units

☒

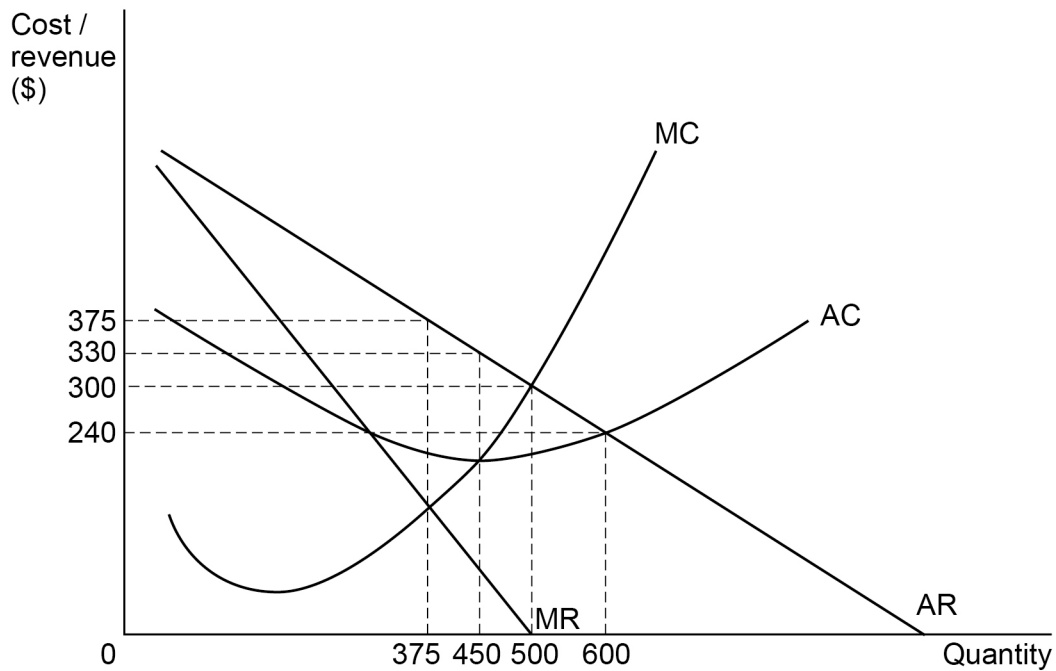
D 120 units

☐
Turn over ►

1 0

Figure 3 shows the cost and revenue curves for a firm that sells chairs.

Figure 3



The owner of the firm has two objectives:

- to sell as many chairs as possible
- to make at least normal profit.

What is the highest amount of total revenue the firm could earn while still being able to achieve both objectives?

[1 mark]

A \$140 625

☐

B \$144 000

☒

C \$148 500

☐

D \$150 000

☐

10



Section B

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

1 1 . 1 Define 'relative poverty'.

[2 marks]

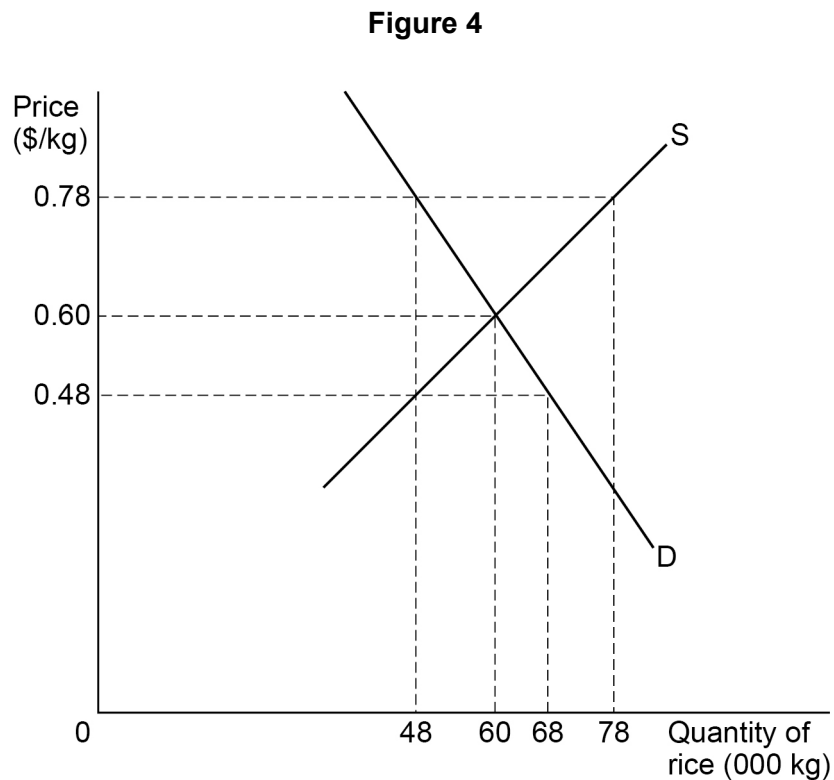
Relative poverty is when an individual or household has an income below a certain percentage of the average (median) income in their country, e.g. below 60% of median income, so they are poor compared with others in the society they live in.

Question 11 continues on the next page

Turn over ►



Figure 4 shows the original supply (S) and demand (D) curves in the market for rice.



To protect households from rising prices, the government imposes a maximum price of \$0.48/kg for rice.

1 1 . 2

Use **Figure 4** to calculate the percentage change in the total amount consumers spend on rice following the introduction of the maximum price.

You are advised to show your working.

[3 marks]

$$\text{Original spending} = \$0.60 \times 60\,000 \text{ kg} = \$36\,000$$

$$\text{With maximum price: quantity bought} = \text{quantity supplied at } \$0.48 = 48\,000 \text{ kg}$$

$$\text{New spending} = \$0.48 \times 48\,000 \text{ kg} = \$23\,040$$

$$\text{Change} = \$23\,040 - \$36\,000 = -\$12\,960$$

$$\% \text{ change} = (-12\,960 \div 36\,000) \times 100 = -36\%$$

$$\text{Answer} = -36\% \text{ (spending falls by 36\%)}$$



1 1 3

Use **Figure 4** to calculate the deadweight loss which results from the introduction of the maximum price.

You are advised to show your working.

[3 marks]

Price consumers would pay for the 48 000th kg (on D) = \$0.78; maximum

price = \$0.48

Price difference = \$0.78 - \$0.48 = \$0.30

Reduction in quantity = 60 000 - 48 000 = 12 000 kg

DWL = $\frac{1}{2} \times 0.30 \times 12\,000 = \$1800$

(lost CS triangle \$1080 + lost PS triangle \$720 = \$1800)

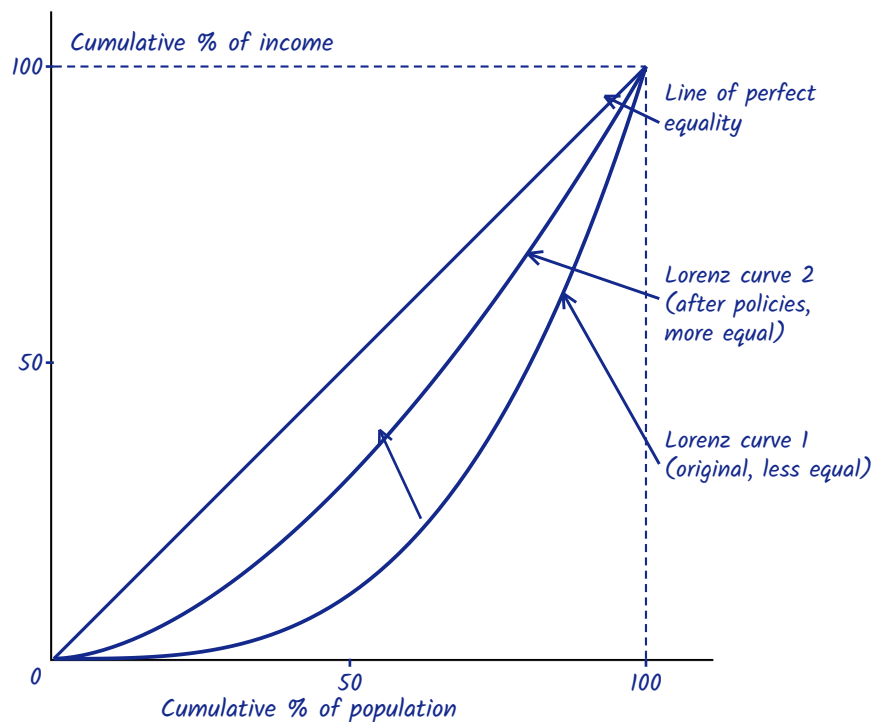
Deadweight loss = \$1800

1 1 4

As well as maximum prices, there are other policies a government could use to influence the distribution of income.

Assuming these policies are successful, draw a Lorenz curve diagram to show a reduction in the inequality in the distribution of income.

[2 marks]



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 the number of cars produced and profits for Tesla between 2016 and 2022.

1 2 . 1

Explain why an increase in the production of cars may increase the profit made by a car producer.

[4 marks]

Profit is total revenue minus total cost. As a car producer increases production it moves towards its minimum efficient scale and benefits from economies of scale, so long-run average cost falls. For example, its large fixed costs of factories, R&D and design are spread over more cars, and it gains technical economies from automated production lines and purchasing economies from bulk-buying batteries, steel and components at lower prices. Lower average costs increase the profit made on each car (price minus average cost). The firm can also choose to cut prices, making its cars more competitive, which raises sales, market share and market power, so total revenue rises. Higher output also gives more revenue as long as the extra revenue from each car (MR) exceeds its marginal cost. With average costs falling and revenue rising, total profit increases, and larger profits can fund

Extra space *new models and product development, raising future revenue.*



1 2 . 2

To what extent do the data suggest that an increase in the production of cars increased the profit made by Tesla between 2016 and 2022?

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

[4 marks]

The data largely support the view. Tesla's production rose in every year, from 75 890 cars in 2016 to 1 313 851 in 2022, an increase of about 1631%, while profit went from a loss of \$667m to a profit of \$13 656m. Between 2016 and 2019 production rose by 384% (to 367 656) and losses fell by 90% (to \$69m), and between 2020 and 2022 production rose by 163% (499 647 to 1 313 851) while profits rose by 585% (\$1994m to \$13 656m), a clear positive relationship.

However, the link is not perfect. In 2017 production increased by 36% (to 103 014) but losses rose by 145%, from \$667m to \$1632m, which is not consistent with the view. These early losses may reflect heavy investment in R&D, new factories and marketing that only raised profits later. Profit is also affected by other factors, such as prices, competition and government

Extra space subsidies for EVs, and correlation does not prove causation.

Overall, the data strongly suggest that higher production increased Tesla's profit over 2016 to 2022 as a whole, though not in every single year.



1 3

Extract B (lines 5–6) states: 'As the car industry moves away from vehicles that use petrol to electric-powered vehicles, demand for labour will change.'

Explain the factors that are likely to affect the demand for labour in the car industry.

[12 marks]

The demand for labour is the number of workers firms are willing and able to employ at each wage rate. It is a derived demand: car makers want workers only because of the demand for the cars they produce. According to marginal revenue productivity theory, a profit-maximising firm employs workers up to the point where the wage equals the marginal revenue product of labour ($MRP = MPP \times MR$), so the MRP curve is the firm's demand curve for labour. Anything that changes productivity or the price of cars shifts the demand for labour.

First, the wage rate itself: a rise in wages causes a contraction along the demand curve, as fewer workers have an MRP above the higher wage. Other labour costs, such as employment taxes, training costs, minimum wages and labour laws, have a similar effect.

Secondly, the demand for cars. As Extract B suggests, demand is shifting from petrol to electric vehicles (EVs). In firms and countries that make EVs, rising demand raises the price and output of EVs, increasing MR and so the MRP of workers, shifting demand for their labour to the right. For producers of petrol cars, falling demand reduces MRP and shifts demand for labour to the left. Government subsidies for EVs and bans on petrol cars speed up this change.

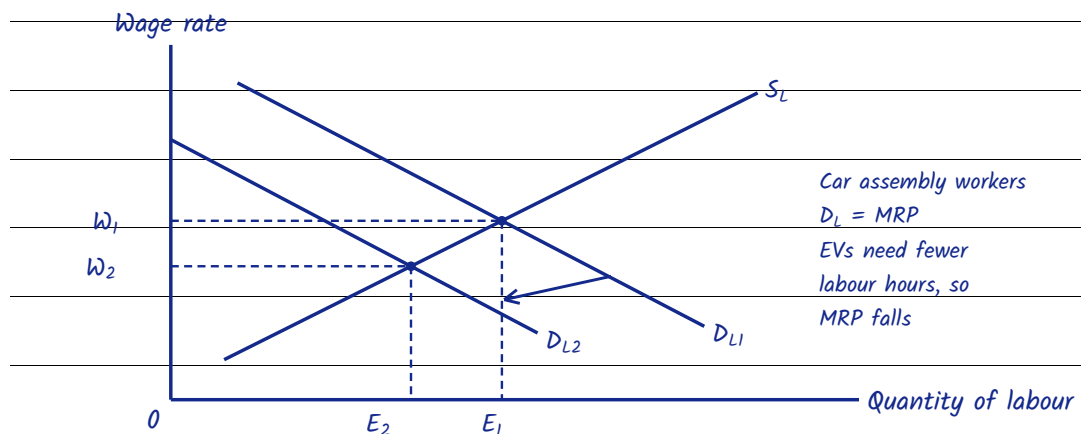
Thirdly, the type of product. EVs have far fewer moving parts than petrol cars, so they need fewer labour hours to assemble: engines, gearboxes and exhausts are no longer needed. This reduces the demand for assembly workers, shown in the diagram as a shift from D_{L1} to D_{L2} , so employment falls from E_1 to E_2 and the wage from W_1 to W_2 . At the same time,



demand rises for different, more skilled labour such as software engineers, battery chemists and electricians, so the type of labour demanded changes.

Fourthly, technology and the availability of substitutes. Greater use of robots and automation can replace labour, especially if capital becomes relatively

Extra space cheaper than workers, reducing demand for low-skilled labour.



However, technology can also be complementary, raising the MPP of skilled workers who operate it and increasing demand for them. The easier it is to substitute capital for labour, the more elastic the demand for labour.

Fifthly, globalisation and market structure. Car production is global, so firms can relocate to countries with lower labour costs or higher skills, for example near battery supply chains, reducing demand in high-wage countries and increasing it elsewhere. Rising concentration through mergers may reduce demand if merged firms close duplicate factories, but large firms gaining market share may expand output and employ more workers.

Finally, the proportion of labour costs in total costs and the elasticity of demand for cars matter: the more price elastic the demand for cars, the more a wage rise reduces employment. Overall, the shift to EVs is likely to reduce the total demand for labour per car but increase demand for highly skilled workers.



1 4

Extract C (lines 5–6) states: ‘Despite rising concentration ratios, new products are being developed. In some countries, government incentives have encouraged new suppliers to enter the car industry.’

Discuss factors that are likely to influence the conduct and performance of firms in the car industry.

[25 marks]

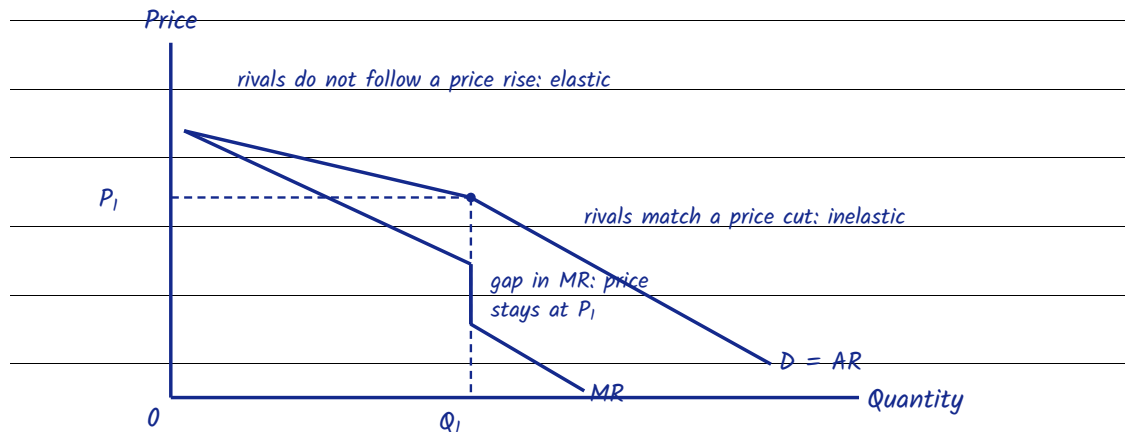
Conduct is how firms behave, for example their pricing, output, investment, advertising, innovation and whether they compete or collude. Performance is the outcome of that behaviour, measured by profit, efficiency (productive, allocative and dynamic), quality, growth and wider social and environmental effects. The car industry is an oligopoly: a few large firms dominate, the concentration ratio is high, there are high barriers to entry such as huge sunk costs and economies of scale, products are differentiated and firms are interdependent.

The first factor is the degree of interdependence. Each car maker must consider how rivals will react. The kinked demand curve model suggests that rivals will match a price cut but not a price rise, so demand is elastic above P_1 and inelastic below it. There is a gap in MR, so even if costs change price is likely to stay at P_1 . Conduct therefore tends to be non-price competition rather than price wars, so profits may be stable. However, the model does not explain how P_1 is set, and in recent years EV makers have cut prices sharply, showing that price competition can still occur when firms want to gain market share.

The second factor is market concentration and the scope for collusion.

Extract C notes rising concentration ratios. With fewer, larger firms, through mergers and joint ventures, firms gain market power and economies of scale, lowering average costs. Fewer firms also find it easier to collude, overtly or tacitly, for example by following a price leader, which would raise prices and profits but reduce allocative efficiency and consumer welfare. Whether this





happens depends on competition policy: regulators can block mergers and fine cartels, which limits collusion. Large firms may also become X-inefficient if they face less competitive pressure.

Thirdly, the importance of innovation and product differentiation. Extract C states that, despite rising concentration, new products are being developed. In a dynamic oligopoly firms compete through new models, EV technology, self-driving software, design and branding. Successful innovation creates brand loyalty, makes demand less price elastic and allows higher prices and supernormal profits, improving dynamic efficiency. However, the huge investment in EV and battery technology raises costs and may reduce short-run profit, and there is no guarantee that it will pay off, so the effect on performance depends on the time period considered. Firms also form partnerships, sharing production facilities or working with technology firms on batteries and software, to share these costs.

Fourthly, contestability and the threat of entry. Extract C says that government incentives have encouraged new suppliers to enter the industry, such as EV specialists and technology firms like Sony or Huawei. Subsidies lower the barriers to entry, so the market becomes more contestable.

Incumbents then have to keep prices closer to average cost, cut costs and innovate faster, so profits may fall but efficiency and consumer welfare rise.

Turn over ►



Extra space *The strength of this effect depends on how large the incentives are and how long they last, since the high sunk costs of car production remain a major barrier.*

Fifthly, government regulation. Emissions targets, safety rules and bans on new petrol cars force firms to change their conduct, investing in cleaner technology. Firms that adapt early may gain, while those that do not may be fined: Volkswagen's cheating on emissions tests led to large fines and damaged its reputation and profits.

Sixthly, the objectives of firms. Not all car makers profit maximise. Because of the divorce of ownership from control, managers may pursue sales or revenue growth, market share or prestige rather than the short-term profit shareholders want (the principal-agent problem). Some firms aim to grow market share quickly, accepting losses for years, as Tesla did before becoming profitable. Strong profits, in turn, fund further R&D, so performance also shapes conduct.

In conclusion, many factors influence conduct and performance in the car industry, but the most important are the degree of competition, which depends on concentration, contestability and government policy, and the need to innovate in the move to EVs. Rising concentration alone suggests less competition, but the extract shows that innovation and government-encouraged entry keep the industry dynamic, so firms are likely to compete mainly through new products rather than collude. The impact on performance depends on the time period: heavy investment may reduce profits in the short run but raise dynamic efficiency and profits in the long run for the firms that succeed. Overall, I judge government intervention and technological change to be the key influences, because they decide how contestable the market is and which firms perform best.



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**

In November 2023, some politicians in Indonesia recommended privatising PLN, the country's state-owned supplier of electricity. They said that the state-owned monopoly was inefficient and delaying the change to more renewable sources of energy. However, in the UK, a report suggests that a new, state-owned, renewable energy firm could reduce the average household electricity bill by up to 35% per year.

Assess the advantages and disadvantages to consumers of having a state-owned monopoly supplying electricity.

[25 marks]**or****1 6**

In 2022, women in Mexico were paid 16.7% less, on average, than men doing similar work. The latest World Bank data showed that only 46% of Mexican women were either employed or actively seeking work, compared to 76% of men. However, unemployment in the country was just 2.7%, which is well below the global average.

Assess the likely impact of discrimination in the labour market on wages, levels and types of employment.

[25 marks]

Labour market discrimination occurs when workers with the same productivity are treated differently because of a characteristic unrelated to their ability, such as gender, ethnicity, age or religion. It can take the form of wage discrimination (being paid less for the same work), employment discrimination (being less likely to be hired or promoted) and occupational discrimination (being excluded from certain jobs). In Mexico, women were paid 16.7% less than men doing similar work, which suggests gender discrimination.

Discrimination reduces wages. If employers are prejudiced, they act as if women's MRP is lower than it really is, by a 'discrimination coefficient' d . In the

Turn over ►

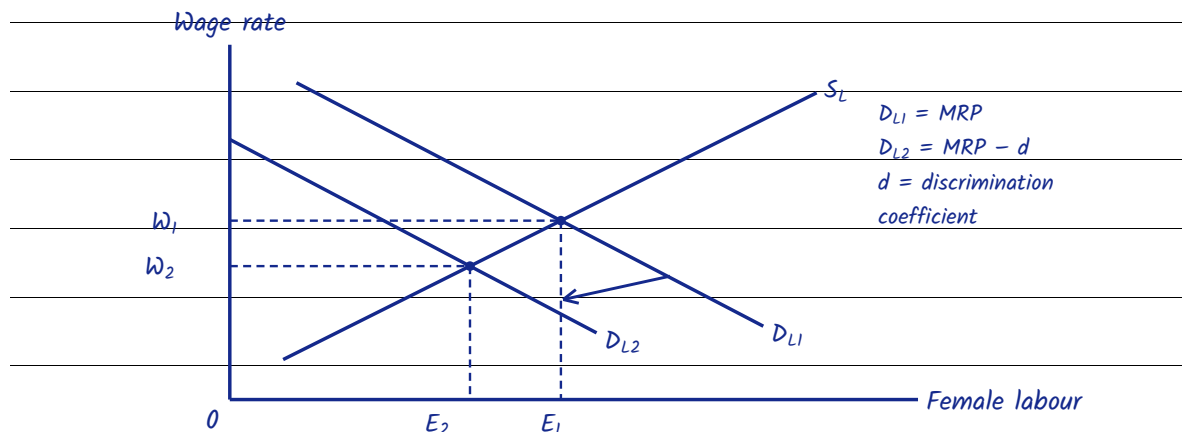


diagram the demand for female labour falls from $D_{L1} = MRP$ to $D_{L2} = MRP - d$, so the wage falls from w_1 to w_2 . Employers with monopsony power can also practise wage discrimination if groups have different elasticities of labour supply: if women are less mobile, for example because of caring responsibilities, their supply is more inelastic and they can be paid a lower wage. Restricted access to training and promotion (a 'glass ceiling') keeps women in lower-paid grades, widening the pay gap further. Discrimination also often stems from imperfect information: employers use stereotypes as a cheap way to judge productivity, which is a form of market failure.

However, the impact on wages may be smaller than the 16.7% gap suggests. Part of the gap may reflect differences in hours, experience, qualifications or occupation rather than discrimination. Also, in a competitive labour market, discriminating firms pay a cost: they hire less productive men at higher wages, so their costs rise and non-discriminating firms that hire equally productive women more cheaply can undercut them. With unemployment in Mexico at only 2.7%, the labour market is tight, so firms that refuse to hire women may struggle to fill vacancies, putting upward pressure on women's wages. Equal pay laws, if enforced, can also limit wage discrimination.

Discrimination also affects levels of employment. In the diagram, employment falls from E_1 to E_2 : fewer women are hired. Lower wages reduce the incentive to

work, so some women leave or never join the labour force. This is consistent with the data: only 46% of Mexican women were employed or actively seeking work, compared with 76% of men. As discrimination causes a contraction in the supply of female labour, the economy loses output and the productive potential of a large part of the population is wasted, so the PPF lies inside where it could be.

However, low participation may also be explained by other factors, such as cultural norms, a lack of affordable childcare, family responsibilities or women choosing to stay in education, and not by discrimination by employers. The low unemployment rate of 2.7% shows that most people who want work can find it, so discrimination may affect who participates more than measured

Extra space unemployment. It also depends on whether women move into informal work, which is not fully measured.

Discrimination also changes the types of employment. If women are excluded from some occupations, such as management, engineering or construction, they crowd into others, such as caring, retail and cleaning. This occupational segregation increases the supply of labour to those jobs and lowers wages there, while reducing supply and raising wages in male-dominated jobs. Stereotypes are reinforced, so the segregation continues: few women in senior roles means few role models and management stays dominated by men. Women may also be pushed into part-time, temporary or informal jobs with lower pay and fewer rights. Lower wages make it harder to save and pay for education and training, which reduces future employability and creates a cycle of low pay, worsening inequality.

Yet the impact depends on the sector and on government policy. In growing service sectors and in firms with diversity targets, women may have good opportunities, and anti-discrimination laws, quotas and government-funded

Turn over ►



childcare can reduce segregation over time. Discrimination is also likely to vary between regions and between the formal and informal sectors.

In conclusion, discrimination in the labour market is likely to reduce wages, levels of employment and access to higher-paid types of employment for the groups affected. The data on Mexico, with a 16.7% pay gap and a female participation rate 30 percentage points below that of men, suggest these effects are significant. However, the size of the impact depends on how competitive the labour market is, whether employers have monopsony power, how strictly anti-discrimination laws are enforced and how much of the gap is due to other factors such as social norms and childcare. I judge that the greatest impact is on the level and type of employment, as discrimination and stereotypes discourage women from entering the labour force and from higher-paid occupations, which in turn explains much of the wage gap.

END OF QUESTIONS

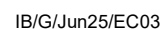


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2 8



2 5 6 X E C 0 3