

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 16 June 2023

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	



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

Which one of the following is most likely to increase wealth inequality in a country?

[1 mark]

A A decrease in income inequality



B A decrease in regressive taxes



C An increase in progressive taxes



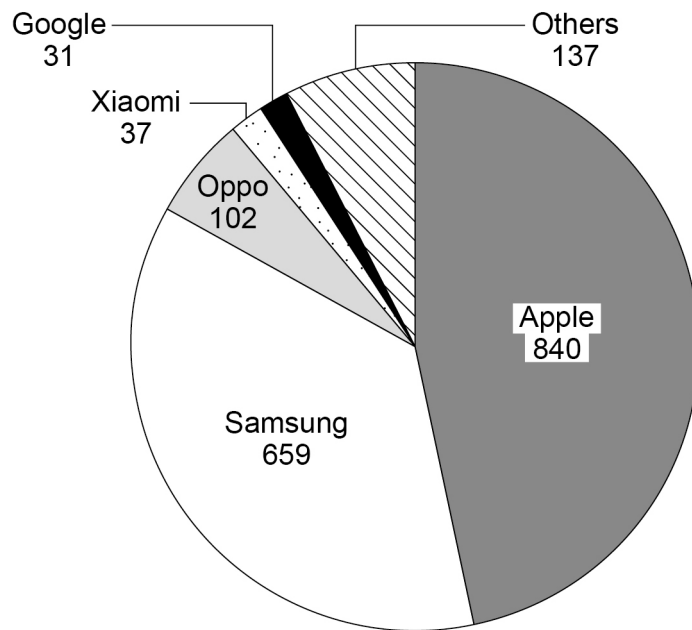
D An increase in property prices



0 2

Figure 1 shows the number of mobile phones sold in Australia, in thousands, during the first three months of 2022.

Figure 1



Total sales of mobile phones = 1 806 000

What is the 4-firm concentration ratio in the market (to one decimal place)?

[1 mark]

A 88.6%

☐

B 90.4%

☐

C 90.7%

☒

D 96.2%

☐

Turn over for the next question

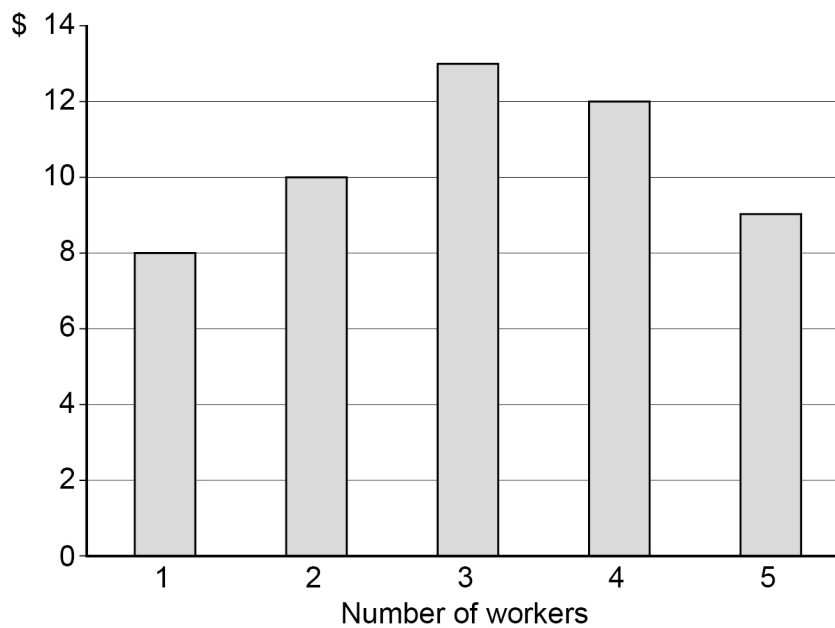
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0 3

Figure 2 shows the marginal revenue product of labour (MRP) per hour when different numbers of workers are employed by a firm. Workers are paid a wage of \$10 per hour.

Figure 2



All other things being equal, how many workers will the firm employ to maximise its profit?

[1 mark]

- A** 2 ☐
- B** 3 ☐
- C** 4 ☒
- D** 5 ☐



0 4

Table 1 shows the inputs of land, labour and capital that a firm uses to produce different quantities of wheat.

Table 1

Land (units)	Labour (units)	Capital (units)	Output of wheat (tonnes)
4	8	12	1000
8	16	24	2400
12	24	36	3900
16	32	48	5600

Which one of the following best describes what the firm experiences when output increases from 1000 to 5600 tonnes?

[1 mark]

- A** Constant returns to scale ☐
- B** Decreasing returns to scale ☐
- C** Diseconomies of scale ☐
- D** Increasing returns to scale ☒

Turn over for the next question

Turn over ►



0 5

Table 2 shows the number of boats that a firm can produce in a month. It also shows the total variable costs and average revenue at each level of output. The firm has fixed costs of \$22 000 for that month.

Which one of the following is the most profitable level of output for the firm?

[1 mark]**Table 2**

	Output (boats)	Total variable costs (\$)	Average revenue (\$)	
A	1	20 000	40 000	☐
B	2	37 000	38 000	☐
C	3	64 000	35 000	☒
D	4	94 000	33 000	☐

0 6

Which one of the following best describes the replacement of existing products, markets and firms by new ones as a result of technological change?

[1 mark]

- A** Competitiveness ☐
- B** Conglomerate integration ☐
- C** Contestable markets ☐
- D** Creative destruction ☒

0 7

Which one of the following is the best example of a sunk cost for a firm that provides bus travel?

[1 mark]

- A** Advertising the bus service ☒
- B** Buying the buses ☐
- C** Fuel for the buses ☐
- D** Wages of bus drivers ☐



0 8

Table 3 shows the marginal utility that Chi receives from each visit to her local park during a particular week.

Table 3

Number of visits (per week)	Marginal utility (units)
1	150
2	120
3	90
4	40

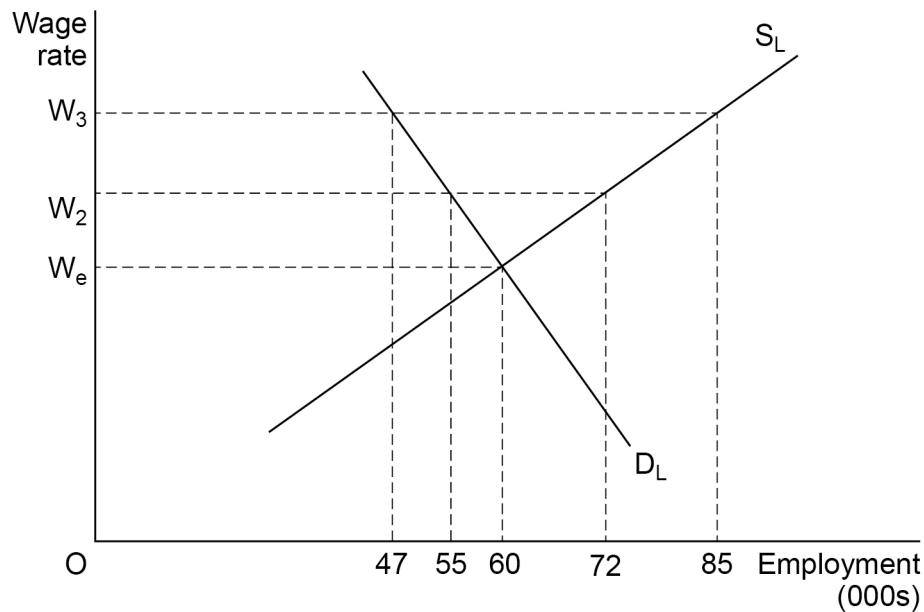
What is the average utility that Chi receives from visiting the park 4 times in that week?

[1 mark]**A** 10 units☐**B** 50 units☐**C** 100 units☒**D** 400 units☐**Turn over for the next question****Turn over ►**

0 9

Figure 3 shows the demand for labour (D_L) and supply of labour (S_L) in a labour market.

Figure 3



All other things being equal, if the government increases the minimum wage from W_2 to W_3 , unemployment in this labour market will increase by

[1 mark]

A 8 000

☐

B 13 000

☐

C 21 000

☒

D 38 000

☐

1 0

Which one of the following is the most likely reason why a firm's minimum efficient scale of production is low?

[1 mark]

A Few economies of scale are available.

☒

B Profit maximisation is its main objective.

☐

C The firm has high sunk costs.

☐

D The industry is a natural monopoly.

☐

10



Section B

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

1 1 . 1 Define 'producer surplus'.

[2 marks]

Producer surplus is the difference between the price producers actually receive for each unit and the minimum price at which they are willing to supply it: the area above the supply curve and below the market price.

Question 11 continues on the next page

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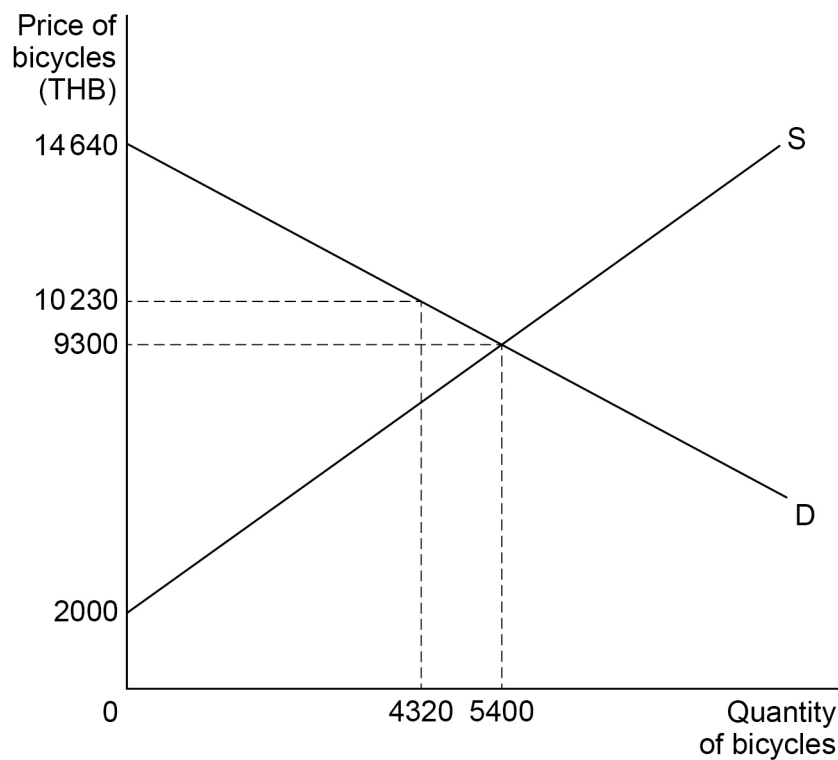


1 1 . 2

Figure 4 shows the supply (S) and demand (D) curves for bicycles in Thailand in 2022.

The price is shown in the Thai currency, the baht (THB).

Figure 4



Calculate the value of consumer surplus when the bicycle market is in equilibrium.

[2 marks]

$$\text{Consumer surplus} = \frac{1}{2} \times (14\,640 - 9\,300) \times 5\,400$$

$$= \frac{1}{2} \times 5\,340 \text{ THB} \times 5\,400 = 2\,670 \times 5\,400$$

$$\text{Consumer surplus} = 14\,418\,000 \text{ THB (baht)}$$



1 1 . 3

A firm with monopoly power raises its price from 9300 baht to 10 230 baht.

Using the data from **Figure 4**, calculate the price elasticity of demand for this change in price.

[2 marks]

$$\% \text{ change in } Q_d = (4320 - 5400) \div 5400 \times 100 = -20\%$$

$$\% \text{ change in } P = (10\,230 - 9300) \div 9300 \times 100 = +10\%$$

$$PED = \% \text{ change in } Q_d \div \% \text{ change in } P = -20\% \div 10\%$$

$$PED = -2 \text{ (price elastic)}$$

Question 11 continues on the next page

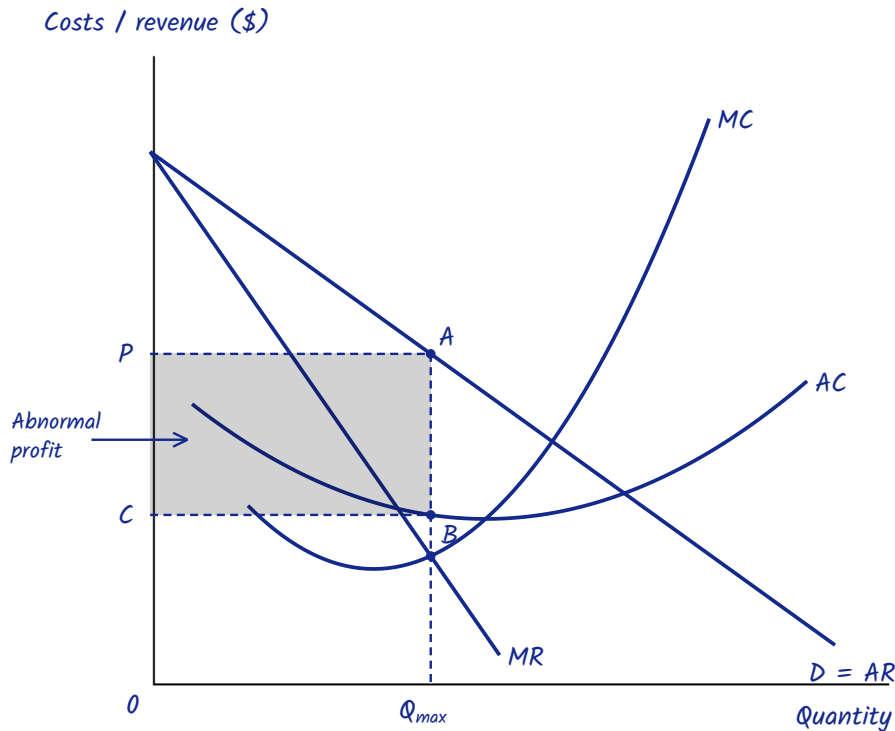
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1 1 4

Explain, using a cost and revenue diagram, how a monopoly supplier can earn abnormal profit in the long run.

[4 marks]



A monopolist is a price maker. It maximises profit where $MC = MR$, producing Q_{max} and charging price P , read off the AR (demand) curve. At Q_{max} average cost is only C , so $AR > AC$ and the firm earns abnormal (supernormal) profit of $P - C$ per unit, the shaded area $PABC$. In a competitive market this profit would attract new entrants, pushing price down to AC . However, a monopoly is protected by high barriers to entry, such as patents, economies of scale or high sunk costs, so new firms cannot enter. Therefore price is not competed down and the monopolist can keep earning abnormal profit in the long run, when all factor inputs are variable.



Section C

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

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

1	2
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Extract A shows access to clean drinking water and average incomes in selected Indian states in 2019–2020.

1	2
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1

Explain how access to clean drinking water may affect average incomes.

[4 marks]

Average income is total income divided by the population, so it reflects how productive the workforce is. Clean drinking water is crucial for health: it prevents water-borne diseases such as cholera, typhoid and diarrhoea. Healthier people take fewer days off sick and can work longer and harder, so labour productivity rises. This raises the marginal revenue product of labour ($MPP \times MR$), so firms demand more labour and can pay higher wages, raising average incomes. Without piped water, households, often women and children, spend hours collecting or boiling water; this time has an opportunity cost, as it could be spent in paid work or at school, building human capital. Healthier children also attend school more, raising future earnings. Higher productivity raises output, giving economic growth and higher living standards across the state.

Question 12 continues on the next page

Turn over ►



1 2 . 2

To what extent do the data suggest that access to clean drinking water has affected average incomes in Indian states in 2019–2020?

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

[4 marks]

The data suggest a positive but weak link. The three states with the lowest access to clean water (77.1% to 86.0%) had three of the four lowest average incomes (53 930 to 62 435 rupees), and the four states with the highest access had three of the four highest incomes. However, Bihar is a major exception: it had the highest access, 99.2%, yet the lowest income, only 30 621 rupees, just 10.1% of Goa's 303 687 rupees although Goa's access was 0.7 percentage points lower. Four states with similar access (93.5% to 99.2%) had incomes ranging from 30 621 to 303 687 rupees, and the range of incomes is far greater than the range of access. Other factors such as education, skills and the type of industry also matter, and the data cover only one year and a few states. On balance, states with more access to clean water tended to have higher incomes, but the effect is limited.

8



1 3

Extract C (lines 14–15) states: 'The Indian pharmaceutical industry was valued at \$42bn in 2021 and is predicted to increase to \$130bn in 2030.'

Explain how firms in the pharmaceutical industry may grow.

[12 marks]

Firms in the pharmaceutical industry can grow in two main ways: internally (organically), by expanding their own operations, or externally, through mergers and takeovers with other firms. Extract C predicts the Indian industry will grow from \$42bn in 2021 to \$130bn in 2030, more than three times its size, so there are strong opportunities for firms to grow.

Internal growth occurs when a firm invests in new capital, such as laboratories and factories, and expands output. In pharmaceuticals the key driver is research and development. Through invention and innovation a firm develops new medicines, and a patent gives it a temporary legal monopoly, so it can charge prices above average cost and earn abnormal profit. These retained profits are the main source of finance for further investment and R&D, so growth becomes self-reinforcing. Growth also depends on human capital: employing skilled scientists and entrepreneurs who can turn research into marketable products. Selling a successful product globally, for example exporting low-cost generic medicines, allows sales to grow far beyond the domestic market and gives economies of scale, which lower average costs and make the firm more competitive.

Market conditions also make internal growth easier. India's population is large and ageing, and incomes are rising, so the demand for medicines and healthcare increases, and since healthcare is a normal good with a high income elasticity, spending rises faster than incomes. This shifts demand for firms' products to the right, allowing them to expand. Partnerships with the government or universities, for example on vaccines or research funding, can also help firms grow by sharing R&D costs and risks.

Turn over ►



External growth is usually faster. Horizontal integration is a merger between
 Extra space firms at the same stage of production in the same industry, for
 example two drug manufacturers. It increases market share and market power,
 gives economies of scale in R&D, marketing and purchasing, and allows the
 firm to acquire a rival's patents and pipeline of new drugs. Vertical integration
 joins firms at different stages of production. Backward vertical integration,
 such as buying a supplier of chemical ingredients, secures supplies and reduces
 costs, while forward vertical integration, such as buying pharmacies or
 distributors, guarantees outlets for the firm's products and captures the
 retailer's profit margin. Conglomerate integration joins firms in unrelated
 markets, for example a pharmaceutical firm buying a cosmetics or food
 company. This diversifies the firm, spreading risk if a drug fails trials or a
 patent expires.

The method chosen depends on the availability of finance. Internal growth can
 be funded from retained profits, while external growth needs large sums raised
 from bank loans or by issuing shares, which is easier for large public limited
 companies. Mergers may also be investigated by the competition authorities if
 they reduce competition. Overall, given the rapid growth of the market,
 pharmaceutical firms are likely to combine innovation-led internal growth with
 mergers and takeovers to grow quickly.



1 4

Extract B (lines 12–13) states: ‘privatisation increases efficiency and innovation. This can improve the quality of the good or service provided.’

Evaluate the case for and against the privatisation of state-owned enterprises in the pharmaceutical sector.

[25 marks]

Privatisation is the transfer of ownership of state-owned enterprises (SOEs), firms owned and run by the government, to the private sector, usually by selling shares to the public or selling the firm to another company. Private firms are mainly driven by the profit motive, while SOEs may pursue social objectives. Extract B argues that privatisation increases efficiency and innovation and so improves quality.

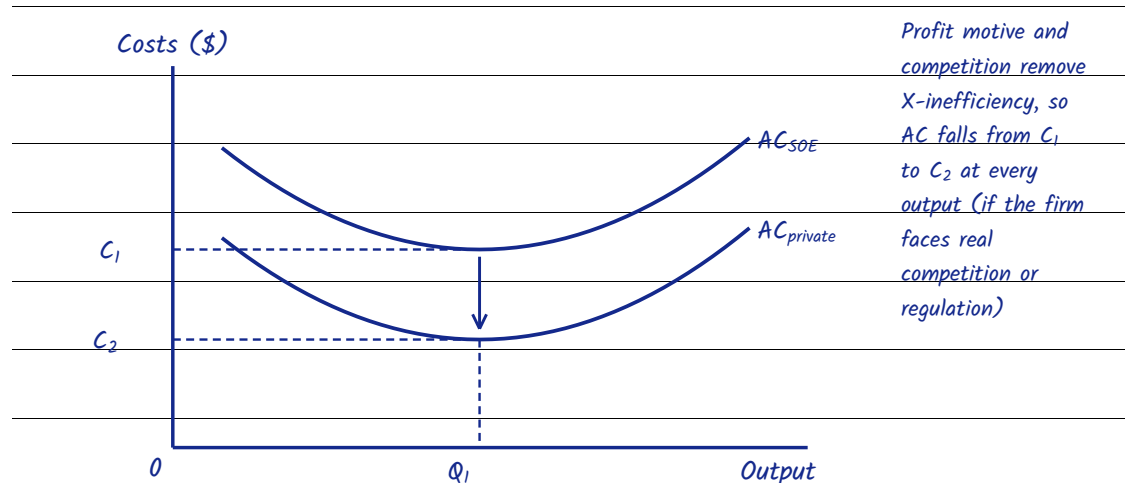
The main case for privatisation is improved efficiency. SOEs often lack the incentive to minimise costs, as losses are covered by the government and managers do not face shareholders. This leads to X-inefficiency, with costs above the lowest possible level. Once privatised, shareholders demand profit, so managers cut waste and adopt better working practices, shifting average costs down from AC_{SOE} to $AC_{private}$. This improves productive efficiency and, if lower costs are passed on, gives lower prices for medicines.

Secondly, privatisation can increase dynamic efficiency. A privatised drug company can raise finance from share issues and commercial loans, and reinvest retained profits, instead of depending on government budgets, which are often too small and subject to political priorities. In pharmaceuticals, developing a new medicine takes many years and huge R&D spending, so access to private finance and the incentive of patent-protected profits encourage innovation, new drugs and better quality treatments in the long run.

Thirdly, the government gains revenue from the sale, which can be spent on hospitals or used to reduce debt, and no longer has to subsidise loss-making SOEs, reducing the opportunity cost of public spending. If privatisation brings

Turn over ►





new entrants into the market, competition increases, which puts further

Extra space downward pressure on prices and raises quality.

However, there are strong arguments against. Medicines are merit goods with positive externalities: vaccinating one person protects others. A

profit-maximising firm ignores these external benefits, so it underproduces

where $MPB = MPC$ rather than $MSB = MSC$, causing market failure. An SOE

can pursue social objectives, such as developing, producing and fairly

distributing vaccines during a public health emergency, even if this is

unprofitable.

Privatised firms will also focus on the most profitable areas of the market.

They may prefer long-term treatments for minor conditions in rich consumers,

which generate repeat sales, over one-off cures for serious diseases affecting

poor people, leaving missing markets for products of great value to society.

Private firms may also be driven by short-term profit to satisfy shareholders,

while an SOE can take a long-term view of public health. Furthermore, if a

large SOE is simply turned into a private monopoly, there is no competition:

the firm can restrict output and raise prices where $MC = MR$, reducing

consumer surplus and allocative efficiency, so patients pay more, and the

poorest may be unable to afford essential medicines, increasing inequality.



These problems can be reduced by regulation, for example price caps on essential medicines or quality standards. However, regulation has costs: a price cap that is too tight reduces the profits needed to fund long-term R&D, and regulators may suffer from asymmetric information or regulatory capture, where they come to act in the interests of the firms they regulate rather than consumers.

Whether privatisation is beneficial depends on several factors. First, the degree of competition after the sale: the efficiency gains in Extract B depend on firms facing rivals or contestable markets, not on ownership alone. Secondly, the type of product: privatisation works better for generic drugs sold in competitive markets than for vaccines and treatments for diseases of the poor, where external benefits are large. Thirdly, the quality of regulation and of government: if an SOE is badly managed and underfunded, the case for privatisation is stronger. Finally, the time period: the efficiency gains may take time, while price rises can be immediate.

In conclusion, privatisation is likely to improve productive and dynamic efficiency in the pharmaceutical sector, as profit incentives and private finance encourage cost cutting and innovation. However, because medicines are merit goods with significant externalities, and a privatised firm may gain monopoly power, the case is not overwhelming. On balance I judge that privatisation is justified where markets are competitive and effective regulation protects consumers, but SOEs should be kept, or partnerships used, for essential medicines and vaccines where social objectives matter most.



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

Türkiye has an important tourism and leisure sector and museums are a valuable part of this industry. Many of them, such as the Topkapi Palace Museum, charge different ticket prices for different customers. Some museums offer free entry to students and local residents, and some change their prices according to the time of year.

Assess whether the advantages of price discrimination are greater than the disadvantages in the tourism and leisure sector.

[25 marks]**or**

1 6

In 2020, the Indonesian Government introduced a new law designed to improve the functioning of labour markets and make them more competitive. Trade unions argued against this law, saying it would remove the minimum wage and reduce workers' rights to employment protection and benefits.

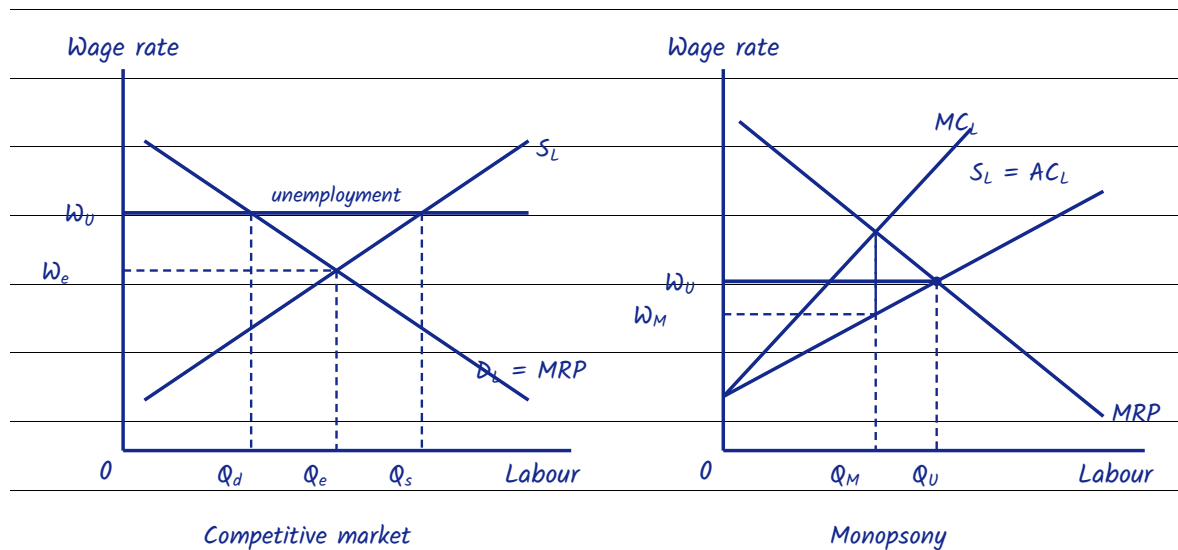
Assess whether trade unions improve the way that labour markets work.

[25 marks]

A trade union is an organisation of workers that uses collective bargaining to negotiate with employers over pay, working conditions and job security. A labour market is where the demand for labour by firms (a derived demand equal to the MRP of labour) meets the supply of labour by workers. Labour markets 'work well' if they allocate labour efficiently, at a fair wage, with low unemployment.

In a perfectly competitive labour market, with many employers and workers and wage W_e set by demand and supply, unions are likely to make it work worse. If a union pushes the wage up to W_u , the supply of labour rises to Q_s but firms only employ Q_d , so employment falls and there is unemployment of $Q_s - Q_d$. Unions may also restrict the supply of labour into an occupation, for example through





closed shops or long qualification requirements, which raises wages for insiders but excludes outsiders. Higher wages raise firms' costs, reducing profits available for investment and dynamic efficiency, and may be passed on as higher prices, causing cost-push inflation and making firms less internationally competitive. Strikes and other disputes lose output, and unions may resist new technology and efficient working practices, making labour markets less flexible when product or labour market conditions change. This is the reasoning behind Indonesia's 2020 law, which aimed to make labour markets more competitive.

However, most real labour markets are imperfect, and here unions can improve the way they work. Many employers have monopsony power, for example where a single large factory or plantation is the main employer in a town. A monopsonist must raise the wage for all workers to hire one more, so the marginal cost of labour (MC_L) is above the supply curve. It employs where $MC_L = MRP$, at Q_M , but pays only w_M , so both wages and employment are below the competitive level and workers are exploited. If a union negotiates a wage of w_U , the firm's MC_L becomes horizontal at w_U up to the supply curve, so it is profitable to employ more workers. Both the wage and employment rise, to w_U and Q_U , and the labour market becomes more efficient. A union can therefore act as a countervailing power

Turn over ►



to monopsony employers.

Unions can also improve labour markets in other ways. Higher wages can raise productivity, as better paid workers are more motivated and healthier, and labour turnover falls, so firms save on recruitment and training costs (efficiency wage theory). Higher wages also attract more workers into an industry, increasing the supply of labour. Unions improve working conditions and health and safety, promoting worker welfare, and provide a channel for communication between workers and managers, so problems are resolved without workers having to leave. Considering the views of a wider range of stakeholders can lead to better decisions. By raising the pay of the lowest paid and defending minimum wages and

Extra space employment protection, as in Indonesia, unions reduce income and wealth inequality and support disadvantaged groups such as women and migrant workers. Workers in developing economies often have little bargaining power individually, with large informal sectors, so this protection may be particularly important.

Whether unions improve labour markets therefore depends on several factors. First, the type of labour market: in competitive markets unions are likely to cause unemployment, while in monopsony markets they can raise both wages and employment. Secondly, the size of the wage increase: if unions push the wage above the competitive level, employment falls even in a monopsony. Thirdly, union bargaining power, which depends on trade union density, the number of unions and the law; strong unions in essential industries can impose large costs. Fourthly, the elasticity of demand for labour: if demand is inelastic, because labour costs are a small share of total costs or capital cannot easily be substituted, higher wages cause little unemployment. Fifthly, the relationship between unions and employers: a cooperative relationship, with productivity deals that link pay to output, benefits both, while a hostile one leads to strikes and lost output.



The role of government also matters. Governments can regulate unions, for example by requiring ballots before strikes, or provide mediation services to settle disputes.

They can also set minimum wages and employment protection directly, which may reduce the need for unions, but if these are removed, as Indonesian unions feared, workers may need unions more to prevent exploitation. In addition, unions are now weaker in many countries with globalisation, as firms can relocate production, which limits how far they can raise wages without losing jobs.

In conclusion, trade unions can make labour markets work worse by raising wages above the equilibrium, restricting labour supply and reducing flexibility, causing unemployment and higher costs. However, labour markets are rarely perfectly competitive, and where employers have monopsony power, as is common in developing economies such as Indonesia, unions can raise both wages and employment, reduce exploitation and inequality, and improve communication and productivity. On balance, I judge that unions improve the way labour markets work when they face powerful employers and bargain cooperatively, but not when they are very powerful in competitive markets and push wages far above the market level.

END OF QUESTIONS



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2 8



2 3 6 X E C 0 3