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91400

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NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY
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QUALIFY FOR THE FUTURE WORLD
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Level 3 Economics, 2017

91400 Demonstrate understanding of the efficiency of different market structures using marginal analysis

2.00 p.m. Wednesday 29 November 2017
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of the efficiency of different market structures using marginal analysis.	Demonstrate in-depth understanding of the efficiency of different market structures using marginal analysis.	Demonstrate comprehensive understanding of the efficiency of different market structures using marginal analysis.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

Merit

TOTAL 17

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QUESTION ONE: EFFICIENCY OF MONOPOLY AND PERFECT COMPETITION

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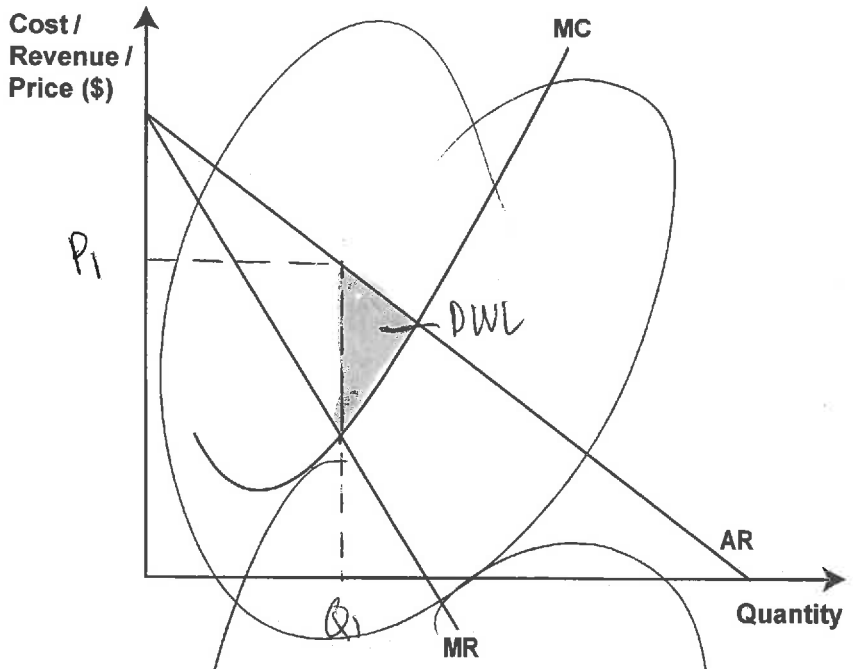
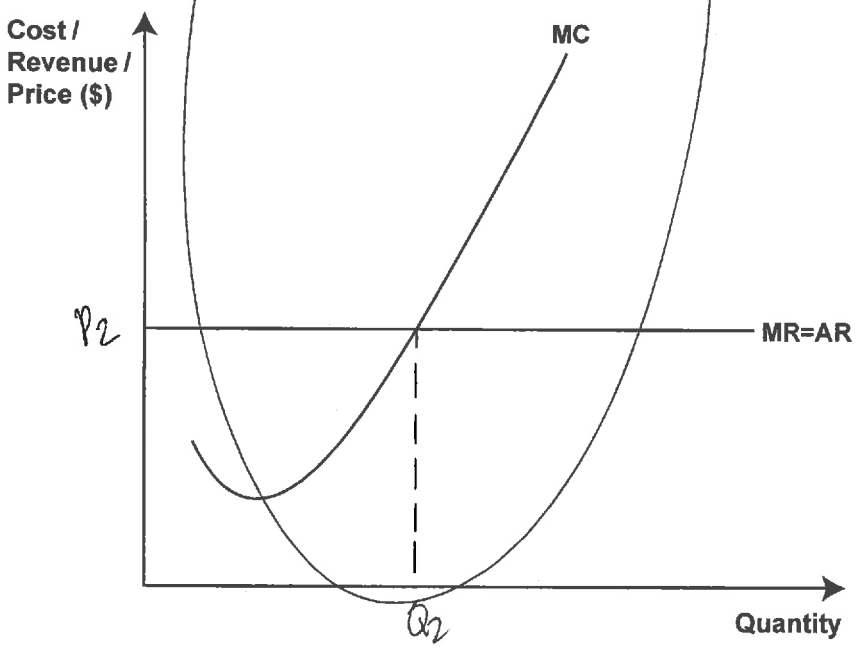
During the last 40 years, the New Zealand Government has implemented a number of policies designed to reduce monopoly power, encourage more competition, and increase efficiency in significant industries such as electricity, telecommunications, and broadcasting.

Graph One: A firm operating in a monopoly market



Graph Two: A firm operating in a perfect competition market



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(a) (i) On Graph One, identify the profit-maximising price (P_1) and the profit-maximising quantity (Q_1) for the monopolist.
(ii) On Graph One, shade the deadweight loss.
(iii) On Graph Two, identify the profit-maximising price (P_2) and the profit-maximising quantity (Q_2) for the perfect competitor.

(b) Referring to both graphs and the key characteristics of both markets, explain in detail why a firm operating in a perfectly competitive market is allocatively efficient and why a firm operating in a monopoly market is NOT allocatively efficient.

A perfectly competitive market are price takers and have no control over price so they will operate where ~~price~~ demand or MR = AR (P_2) equals supply or MC at Q2 and at Q2 both producer and consumer surplus are being fully maximised so a firm operating in a perfectly competitive market is always allocatively efficient.

However, a firm operating a monopoly market is not allocatively efficient. This is because in a ~~monopoly market~~, firms control ~~price~~ ~~as a~~ so price or quantity and will chose to operate at Q1 in graph one as this is where MC = MR so profit is being fully maximised. As monopolies do not face competition because of the high start up costs, they will remain producing at Q1, which results in a loss of allocative efficiency (DWL in graph 1), ~~demonstrating why a firm opera~~ as producer and ~~consumer surplus~~ are not being fully maximised. Therefore a firm operating in a monopoly market will not be allocatively efficient until government intervention.

MS

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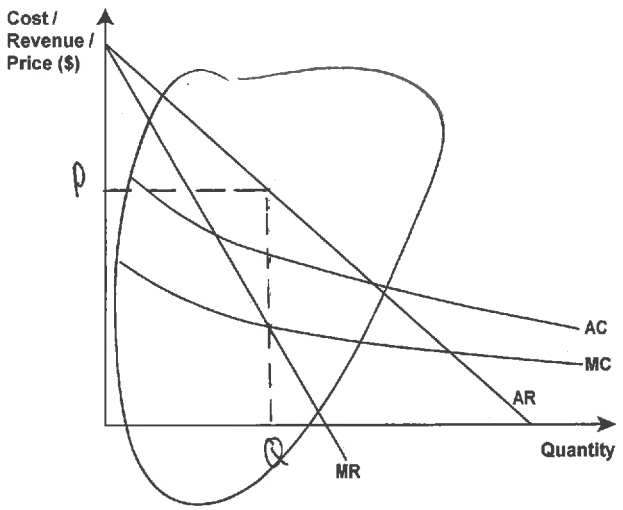
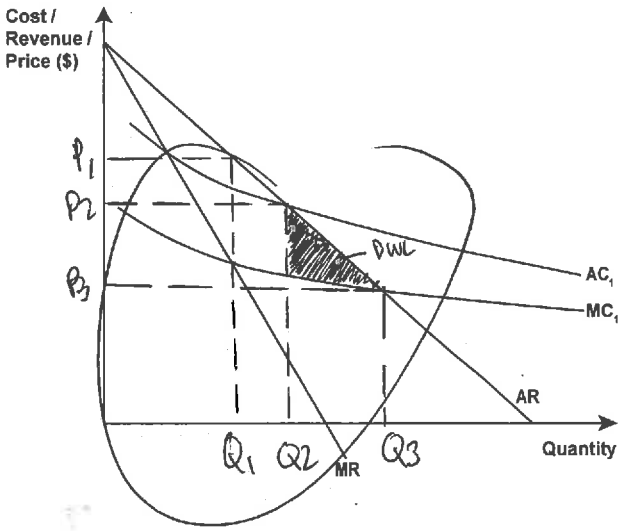
QUESTION TWO: NATURAL MONOPOLY

Graph Three: A natural monopoly



Graph Four: A natural monopoly after an increase in variable costs



(a) (i) On Graph Three above, identify the profit-maximising price (**P**) and the profit-maximising quantity (**Q**).

(ii) On Graph Four above, identify the profit-maximising price (P_1) and the profit-maximising quantity (Q_1).

(b) Use the concept of marginal analysis to explain in detail why the increase in variable costs has resulted in a lower quantity produced for the natural monopolist. Refer to both graphs.

The increase in variable cost means that marginal cost and average costs would increase as average cost is total cost (including variable costs) divided by output and marginal cost, the extra cost of producing one additional unit, increases. Therefore AC increases to AC_1 in graph four and MC increases to MC_1. At old quantity on graph 3, Q, the marginal cost curve (MC_1) would be greater than MR so the firm is making a marginal loss. They would therefore decrease ~~quantity until they are operating at~~ new profit maximising quantity Q_1 where $MR = MC_1$. Therefore it is clear to see that an increase in variable costs results in lower quantity produced at Q_1 on graph 4 instead of Q on graph 3 for the natural monopolist.

As a result of the increase in price and reduction in quantity, the Government may decide to implement price controls to make the good more affordable for consumers and the market more efficient. Average cost pricing and marginal cost pricing are two examples of price controls that the Government could use.

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(c) On Graph Four, identify

- the price (P_2) and quantity produced (Q_2) if the Government employed average cost pricing
- the price (P_3) and quantity produced (Q_3) if the Government employed marginal cost pricing.

(d) Referring to Graph Four, explain in detail:

- which of these two policies would be more beneficial for the consumer
- the impact of both price controls on allocative efficiency.

The average cost pricing at P2 and Q2 on graph four would benefit the consumer. This is because consumers ~~are paying~~ a lower price than P1 and consuming more at Q2, therefore increasing consumer surplus. However ~~the marginal cost pricing~~ (P3, Q3) ~~will have~~ will be ~~the~~ more beneficial to consumers as prices go even lower than P2 to P3 and quantity increases significantly to Q3, therefore resulting in a bigger change in consumer surplus than the average cost pricing policy proving that the marginal cost pricing is more beneficial to consumers. The average cost pricing control will reduce the loss ~~of allocative~~ efficiency as consumer surplus increases but there will still be deadweight loss as shown in graph 4 by the shaded area. The marginal cost pricing will ~~positively~~ impact ~~the allocatively~~ allocative efficiency as it will ~~achieve~~ have no deadweight loss as at P3, Q3, MC_1 is equal to AR or supply is equal to demand. Therefore producer and consumer surplus is being fully maximised at P3 and Q3 achieving allocative efficiency in natural monopoly market. Marginal cost pricing will have ~~the~~ a bigger positive impact on allocative efficiency than ~~the~~ average cost pricing policy control.

MG

QUESTION THREE: PERFECT COMPETITION

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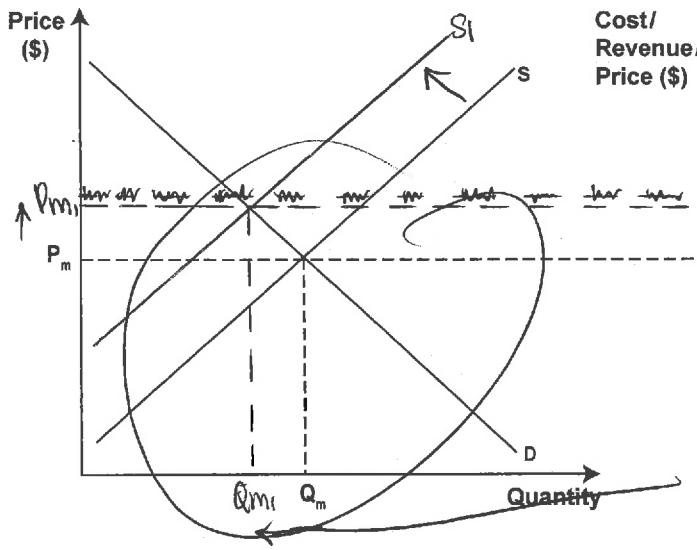
The average rent in the Auckland region has increased 21 per cent in the last five years.

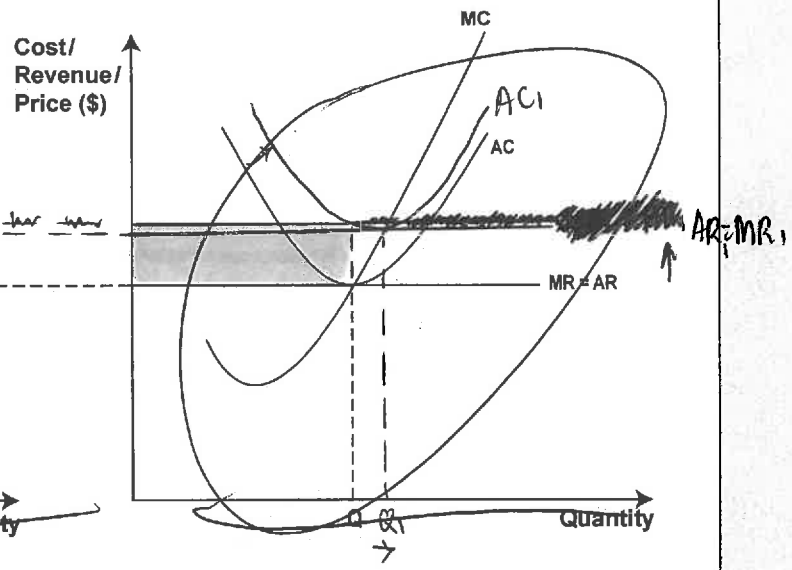
Source (adapted) http://www.stuff.co.nz/life-style/home-property/80706225/auckland-sees-massive-rent-increases--but-not-in-the-places-youd-expect

Increased rents have affected both residential and commercial properties in Auckland and will increase the fixed costs for firms that rent their premises.

Graph Five: The market



Graph Six: The individual perfectly competitive firm



(a) (i) Complete Graph Six to show the impact of an increase in fixed costs on the individual firm. Clearly label any curve shifts.

(ii) On Graph Six, clearly shade the new level of economic profit that would be earned by the individual firm as a result of the increase in fixed costs. Identify the profit as normal, supernormal, or subnormal.

(b) (i) Complete Graph Five to show how the market equilibrium price would be affected in the long run as a result of the increase in fixed costs.

(ii) On Graph Six, show how the changes in the market would affect the long-run levels of output and profit for the individual firm, assuming that the firm stays in the industry.

(c) Use marginal analysis to compare and contrast the short-run and long-run profit and output decisions of a perfect competitor after an increase in fixed costs. In your answer:

- refer to both graphs
- explain in detail the impact (if any) on the short-run level of output and profit for the individual firm as a result of an increase in fixed costs
- explain in detail how the long-run changes in the market would affect the long-run levels of output and profit for the individual firm, assuming that the firm stays in the industry.

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Increased fixed costs increase average cost shown in graph Six from AC to AC_1 but doesn't impact marginal cost as the extra cost of producing one extra unit doesn't change. This then causes average cost to be greater than (MR = AR) price resulting in a subnormal profit in the short run for the individual perfectly competitive firm, where no firms can leave or enter the market.

From this increase in fixed costs and resulting subnormal profit, firms will choose to exit the market as there are no barriers to entry/exit in the perfectly competitive market causing a fall in supply in graph 5. ~~until the individual firm is making a normal profit~~ from S to S_1. Total quantity being sold in the market then falls to Q_{m1} as less firms are producing and as a result prices also increases to P_{m1}. At new price equilibrium, the individual perfectly competitive firm's average revenue and marginal revenue increases as shown in graph 6 from AR=MR to $AR_1 = MR_1$. For individual firm, At ~~all p~~ old quantity, Q, MR_1 is greater than MC so firms are missing out on making marginal profit. They will therefore increase quantity to Q_1 where marginal ~~revenue~~ (new) is equal to marginal cost at profit maximising output and the individual firm makes a normal profit in the long run, this is assuming that the firm doesn't leave the industry, such as ~~rent commercial and residential rent~~ average rental industry in Auckland.

Merit exemplar 2017

Subject:	Economics	Standard:	91400	Total score:	17

Q	Grade score	Annotation
1	M5	The response has been awarded M5 because the candidate has: • correctly labelled both graphs • explained that a PC firm operates where AR = MC (demand = supply) • explained that a monopolist can control the price or quantity with the idea of being the only seller • used the concept of deadweight loss and total surpluses not being maximised for a monopoly • referred to specific labels from the graphs Two gain a E7 grade or better would require the candidate to give a reason for why a PC firm is a price taker and referring to no deadweight loss when explaining why a PC firm is allocative efficient
2	M6	The response has been awarded M6 because the candidate has: • used the concept of marginal analysis, with reference to labels from the graphs and marginal losses, to explain why an increase in variable costs results in lower quantity produced • explained that MC pricing is more beneficial for the consumer due to a higher consumer surplus and lower price and higher quantity • explained that MC pricing achieves allocative efficiency due to no deadweight loss and total surpluses being maximised and MC = AR (supply = demand) • referred to specific labels from the graphs To gain a E7 grade or better would require the candidate explaining that AC pricing is not allocative efficient, with a valid reason linked to deadweight loss.
3	M6	The response has been awarded M6 because the candidate has: • given a valid reason for why the profit declines to subnormal for the short run and states that AC is greater than AR • for the long run, used key characteristics of perfect competition and marginal analysis to give valid reasons for why the market price increases, and the output increases • referred to specific labels from the graphs To gain an E7 grade or better would require the candidate to explain why the firm earns a normal profit in the long run and refererence to the idea of price taker when explaining why MR = AR increases.