Assessment Schedule – 2016

Economics: Demonstrate understanding of the efficiency of different market structures using marginal analysis (91400)

Assessment criteria

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding involves: • providing an explanation of: – pricing and output decisions for perfectly competitive and / or monopolist firms using marginal analysis – efficiency of a market structure – impact of a change in a market on the short- and / or long-run pricing and / or output decisions of a firm using marginal analysis – a government policy to improve the efficiency of a monopoly market • using an economic model(s) to illustrate concepts relating to the efficiency of different market structures.	*Demonstrate in-depth understanding* involves: • providing a detailed explanation of: – pricing and output decisions for perfectly competitive and / or monopolist firms using marginal analysis – the efficiency of a market structure – the impact of a change in a market on the short- and / or long-run pricing and / or output decisions of a firm using marginal analysis – a government policy to improve the efficiency of a monopoly market • using an economic model(s) to illustrate complex concepts and / or support detailed explanations relating to the efficiency of different market structures.	*Demonstrate comprehensive understanding* involves: • comparing and / or contrasting: – the efficiency of market structures – the impact of a change in a market on the short- and long-run pricing and / or output decisions of a firm using marginal analysis – the effectiveness of government policies to improve the efficiency of a monopoly market • integrating an economic model(s) into explanations relating to the efficiency of different market structures.

Each question should be read as a whole before awarding a grade.

Note: *Explanation* involves giving a reason for the answer.

Detailed explanation involves giving an explanation with breadth (more than one reason for the answer) and / or depth (e.g. using flow-on effects to link the main cause to the main result).

Question One	Sample answers / Evidence
(a)	See **Appendix One**.
(b)	Electricity consumers would benefit because they would pay less for electricity ($\mathbf{P_1}$ to $\mathbf{P_2}$) and would have a greater choice (or more electricity available) because more retailers would be supplying electricity ($\mathbf{Q_1}$ to $\mathbf{Q_2}$) and because choice fosters competition. Hence, the consumer surplus would increase. $\mathbf{P_2}$ and $\mathbf{Q_2}$ is allocatively efficient because this is the price and quantity where **MC** = **AR**. Hence, market supply = market demand in the electricity market. There is no deadweight loss because consumer plus producer surplus is maximised. In contrast, the profit-maximising equilibrium is not allocatively efficient because the monopolist operates where **MR** = **MC** in order to maximise profits. At $\mathbf{P_1}$ and $\mathbf{Q_1}$, a deadweight loss exists (see shaded labelled area on **Graph One**) because consumer and producer surplus are not maximised. The government may need to subsidise electricity retailers, as they will be earning a subnormal profit at $\mathbf{P_2}$ and $\mathbf{Q_2}$ because total revenue is not covering total economic costs (AR is less than AC). Hence, retailers will leave the industry in the long run unless the government intervenes.

Achievement	Achievement with Merit	Achievement with Excellence
(a) On the graph: • $\mathbf{P_1}$ and $\mathbf{Q_1}$ correctly labelled • Consumer surplus OR deadweight loss correctly shaded and labelled. • $\mathbf{P_2}$ and $\mathbf{Q_2}$ correctly labelled. (b) Explains: • Electricity consumers would benefit because they would be paying lower prices OR have more choice / greater quantity OR consumer surplus would be higher. • $\mathbf{P_2}$ and $\mathbf{Q_2}$ is allocatively efficient because supply = demand OR no deadweight loss OR consumer surplus plus producer surplus is maximised. • The government may need to subsidise electricity retailers because they are making a subnormal profit OR revenue is less than costs OR they will leave the industry in the long run.	(b) Explains in detail: • Electricity consumers would benefit because they would be paying lower prices AND have more choice / greater quantity AND consumer surplus would be higher. • $\mathbf{P_2}$ and $\mathbf{Q_2}$ is allocatively efficient because supply = demand AND no deadweight loss AND consumer surplus plus producer surplus is maximised. • The government may need to subsidise electricity retailers, as they are making a subnormal profit because revenue is less than costs, so they will leave the industry in the long run.	(b) Explains in detail: • Electricity consumers would benefit as they are paying lower prices AND have more choice / greater quantity AND consumer surplus would be higher. • $\mathbf{P_2}$ and $\mathbf{Q_2}$ is allocatively efficient because supply = demand AND no deadweight loss AND consumer surplus plus producer surplus is maximised. **In contrast**, the profit-maximising equilibrium is not allocatively efficient because DWL exists and consumer plus producer surplus is not maximised. • The government may need to subsidise electricity retailers, as they are making a subnormal profit because revenue is less than costs, so they will leave the industry in the long run.

N1	N2	A3	A4	M5	M6	E7	E8
Very little Achievement evidence.	Some Achievement evidence, partial explanations.	Most Achievement evidence.	Nearly all Achievement evidence.	Some Merit evidence. Must refer to Graph One.	Most Merit evidence. Must refer to Graph One.	Excellence evidence. One part may be weaker AND integrates relevant information from Graph One into the explanation.	All points covered AND integrates relevant information from Graph One into the explanation.
N0 No response; no relevant evidence							

Question Two	Sample answers / Evidence
(a)	See **Appendix Two**.
(b)	See **Appendix Three**.
(c)	**Firm earning subnormal profit (Graph Two)** The firm's profit in Graph Two will increase from subnormal to normal profit in the long run. This is because some of the other firms will exit the industry (no barriers to exit), as they are not earning sufficient revenue to cover their total economic cost and keep them in the industry (**TC** > **TR**). As firms leave, market supply will decrease, pushing up the market price and increasing the price ($\mathbf{P_3}$), **MR** ($\mathbf{MR_3}$), and **AR** ($\mathbf{AR_3}$) for the remaining firms because each firm is a price taker. This process will continue until each of the remaining firms earns a normal profit (**TR** = **TC**) and the incentive to leave the industry has disappeared. At $\mathbf{Q_1}$, **MR** will be greater than **MC**, so the firm is missing marginal profits. Hence, it will increase output to $\mathbf{Q_3}$, where $\mathbf{MR_3}$ = **MC** and profits are maximised. **Firm earning supernormal profit (Graph Three)** The firm's profit in Graph Three will decrease from supernormal to normal profit in the long run. This is because more firms will enter the industry (no barriers to entry), as they are attracted by the opportunity to earn supernormal profits (**TR** > **TC**). As firms enter, market supply will increase, pushing down the market price and decreasing the price ($\mathbf{P_4}$), **MR** ($\mathbf{MR_4}$), and **AR** ($\mathbf{AR_4}$) for each firm because each firm is a price taker. This process will continue until all firms earn a normal profit and the incentive to join the industry has disappeared. At $\mathbf{Q_2}$, **MC** will be greater than **MR**, so the firm is making marginal losses. Hence, it will reduce output to $\mathbf{Q_4}$, where $\mathbf{MR_4}$ = **MC** and profits are maximised.

Achievement	Achievement with Merit	Achievement with Excellence
On the graph: (a) **P_1** and **Q_1** correctly labelled OR subnormal profit correctly shaded and labelled. (b) **P_2** and **Q_2** correctly labelled OR supernormal profit correctly shaded and labelled. (c) Explains for subnormal profit: • The firm earns a normal profit in the long run as **new TR** = **TC** OR as **new AR = AC**. • The price increases for the firm because of the decrease in market supply / other firms leaving the industry. • The firm produces more as **new MR** is greater than **MC** OR it will increase output to where the **new MR** = **MC**. Explains for supernormal profit: • The firm earns a normal profit in the long run because **new TR** = **TC** OR as **new AR = AC**. • The price decreases for the firm because of the increase in market supply / other firms joining the industry. • The firm produces less, as **MC** is greater than **new MR** OR it will reduce output to where the **new MR** = **MC**.	(c) Explains in detail: • The firm earns a normal profit in the long run because **TR** = **TC (new AR = AC)** AND EITHER there are no barriers to exit OR the incentive for more firms to exit has disappeared. • The price increases to P_3 for the firm because of the decrease in market supply / other firms leaving the industry AND the firm is a price taker. • The firm produces more because **new MR** is greater than **MC**, so it is missing marginal profits AND will increase output to Q_3 where the **new MR** = **MC**. (new MR = AR curve must be correctly drawn and labelled) **OR** Explains in detail: • The firm earns a normal profit in the long run because **TR** = **TC (new AR = AC)** AND EITHER there are no barriers to entry OR the incentive for more firms to enter has disappeared. • The price decreases to P_4 for the firm because of the increase in market supply / other firms joining the industry, AND the firm is a price taker. • The firm produces less because **MC** is greater than **new MR**, so it is making marginal losses and will reduce output to Q_4 where the **new MR** = **MC**. (new MR = AR curve must be correctly drawn and labelled)	(c) Explains in detail: • The firm earns a normal profit in the long run because **TR** = **TC (new AR = AC)** AND there are no barriers to exit AND the incentive for more firms to exit has disappeared. • The price increases to P_3 for the firm because of the decrease in market supply / other firms leaving the industry AND the firm is a price taker • The firm produces more because **new MR** is greater than **MC**, so it is missing marginal profits AND will increase output to Q_3 where the **new MR** = **MC**. **AND** Explains in detail: • The firm earns a normal profit in the long run because **TR** = **TC (new AR = AC)** AND there are no barriers to entry AND the incentive for more firms to enter has disappeared. • The price decreases to P_4 for the firm because of the increase in market supply / other firms joining the industry AND the firm is a price taker. • The firm produces less because **MC** is greater than **new MR**, so it is making marginal losses and will reduce output to Q_4 where the **new MR** = **MC**.

N1	N2	A3	A4	M5	M6	E7	E8
Very little Achievement evidence.	Some Achievement evidence, partial explanations.	Most Achievement evidence.	Nearly all Achievement evidence.	Some Merit evidence. Must refer to Graph Two OR Graph Three.	Most Merit evidence. Must refer to Graph Two OR Graph Three.	Excellence evidence. One part may be weaker AND integrates relevant information from both graphs into the explanation.	All points covered AND integrates relevant information from both graphs into the explanation.
N0 No response; no relevant evidence							

Question Three	Sample answers / Evidence
(a)	See **Appendix Four**.
(b)	See **Appendix Five**.
(c)	The increase in market demand would increase **AR** for the monopolist from **AR** to **AR_1**. This means that at the new profit-maximising equilibrium (**$P_1 - Q_1$**), total revenue would have increased to **$P_1 \times Q_1$** and is now greater than total costs. So the monopolist would be earning a supernormal profit. The reduction in fixed costs would lower the average costs for the monopolist, hence total costs would decline as **TC = Q × AC**. So the monopolist would be earning a supernormal profit because **TC** would then be less than **TR**. An increase in market demand would have a greater impact on the profit-maximising price and the profit-maximising quantity. This is because **MR** would increase to **MR_1**, so **MR** would be greater than **MC** at the original quantity, **Q**. Because the monopolist would be missing marginal profits, they would increase output to **Q_1**, where **MR_1 = MC** and profits would be maximised. The price would increase to **P_1** because this would be the average revenue at the new level of output (and a higher price could be charged because of the increase in market demand). For a reduction in fixed costs, there is no change in price or quantity for the monopolist because fixed costs such as interest are independent of output, so marginal cost will not change. Hence, the monopolist will keep producing at **P** and **Q** where **MR** = **MC** and profits are maximised.

Achievement	Achievement with Merit	Achievement with Excellence
On the graph: (a) • MR and AR curves shifted right, labelled. • Increased price and quantity labelled. (b) AC curve shifted down and labelled (no change to price and quantity). (c) Explains: • An increase in market demand would increase profit to supernormal because of an increase in **AR / TR**. • A decrease in fixed costs would increase profit to supernormal because of a reduction in **AC / TC**. • An increase in market demand would increase price and quantity as **new MR** is greater than **MC**, OR as output will be increased to where the **new MR = MC**. • A reduction in fixed costs would leave price and quantity unchanged as **MR = MC, the profit-maximising position,** stays the same.	(c) Explains in detail: • An increase in market demand would increase profit to supernormal because of an increase in **AR / TR** so now **TR** is greater than **TC** (at $P_1 - Q_1$) OR **AR** is greater than **AC** • A decrease in fixed costs would increase profit to supernormal because of a reduction in **AC / TC**, so now **TC** is less than **TR** OR **AC** is less than **AR** • An increase in market demand would increase price and quantity as **MR** is greater than **MC** at **Q**, so as marginal profits are being missed, output would be increased to Q_1 where **new MR** = **MC**. OR price would be increased to P_1 as market demand increases and the firm is a price maker OR • A reduction in fixed costs would leave price and quantity unchanged as **MC** stays the same, so the monopolist would still be maximising profits at the original price and quantity.	(c) Explains in detail: • An increase in market demand would increase profit to supernormal because of increase in **AR / TR** so now **TR** is greater than **TC** (at $P_1 - Q_1$). • A decrease in fixed costs would increase profit to supernormal because of a reduction in **AC / TC**, so now **TC** is less than **TR**. • An increase in market demand would increase price and quantity as **MR** is greater than **MC** at **Q**, so as marginal profits are being missed, output would be increased to Q_1 where **new MR** = **MC**. (must also give valid reason for price increase) AND • A reduction in fixed costs would leave price and quantity unchanged as **MC** stays the same, so the monopolist would still be maximising profits at the original price and quantity.

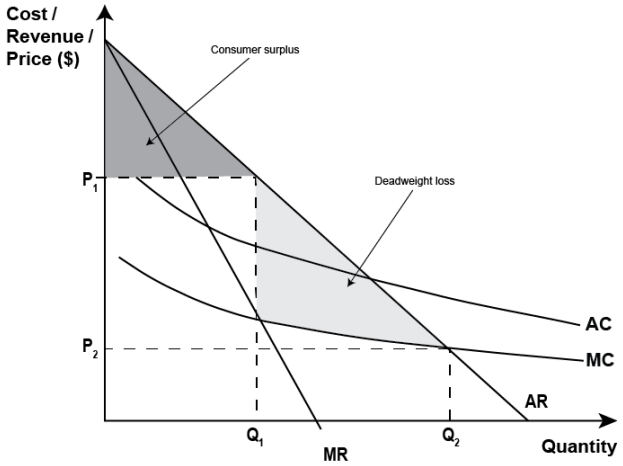
N1	N2	A3	A4	M5	M6	E7	E8
Very little Achievement evidence.	Some Achievement evidence, partial explanations.	Most Achievement evidence.	Nearly all Achievement evidence.	Some Merit evidence. Must refer to Graph Four or Graph Five.	Most Merit evidence. Must refer to Graph Four or Graph Five.	Excellence evidence. One part may be weaker AND integrates relevant information from both graphs into the explanation.	All points covered AND integrates relevant information from both graphs into the explanation.
N0 No response; no relevant evidence							

Cut Scores

Not Achieved	Achievement	Achievement with Merit	Achievement with Excellence
0 – 6	7 – 13	14 – 18	19 – 24

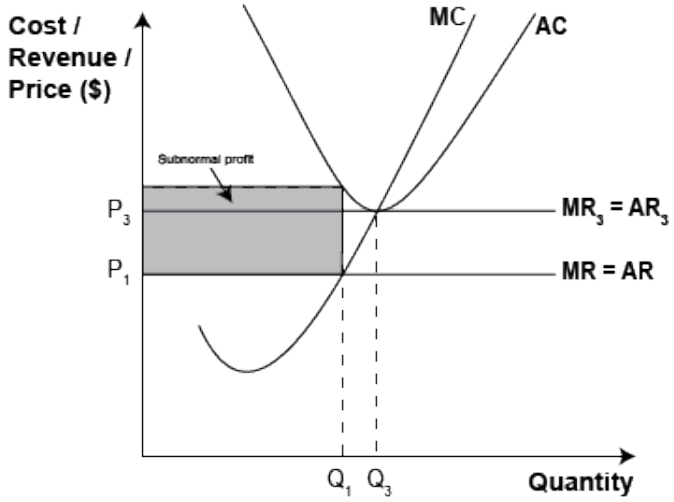
Appendix One – Question One (a)

Graph One: The New Zealand retail electricity market



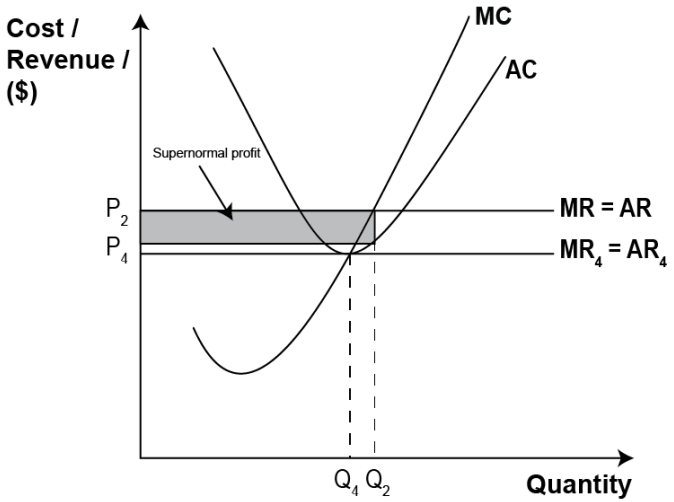
Appendix Two – Question Two (a) (i)

Graph Two: An individual perfectly competitive firm earning a subnormal profit in the short run



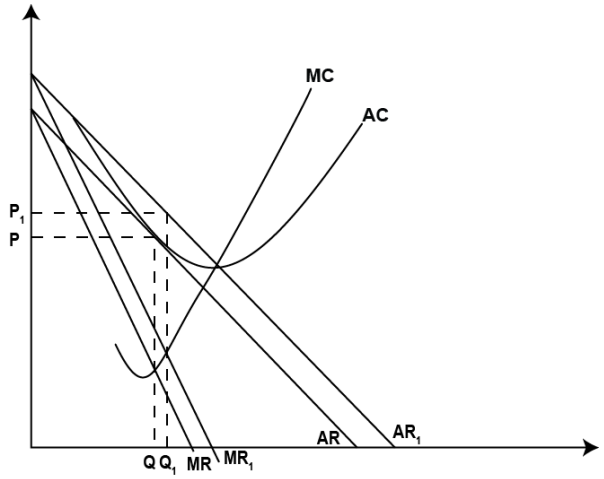
Appendix Three – Question Two (b) (i)

Graph Three: An individual perfectly competitive firm earning a supernormal profit in the short run



Appendix Four – Question Three (a)

Graph Four: A monopolist earning a normal profit



Appendix Five – Question Three (b)

Graph Five: A monopolist earning a normal profit