**Assessment Schedule – 2016**

**Economics: Demonstrate understanding of the efficiency of market equilibrium (91399)**

**Assessment criteria**

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|---|---|
| *Demonstrate understanding* involves: <br><br> • providing an explanation of: <br>   &minus; market equilibrium and / or changes in market equilibrium <br>   &minus; efficiency in the market <br> • using an economic model(s) to illustrate concepts relating to the efficiency of market equilibrium. | *Demonstrate in-depth understanding* involves: <br><br> • providing a detailed explanation of: <br>   &minus; market equilibrium and / or changes in market equilibrium <br>   &minus; impact of changes in markets on efficiency in the market <br> • using an economic model(s) to illustrate complex concepts and / or support detailed explanations relating to the efficiency of market equilibrium. | *Demonstrate comprehensive understanding* involves: <br><br> • analysing the impact of a change in a market on efficiency by comparing and / or contrasting the different impacts on participants (i.e. consumer, producer, and, where appropriate, government) in that market <br> • integrating an economic model(s) into explanations relating to the efficiency of market equilibrium that compare and / or contrast the different impacts. |

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) (i) | See **Appendix One**. |
| (ii) | Following the arrival of Uber, the number of suppliers of taxi rides in New Zealand increases at each and every price, shifting the supply curve to the right, from **S** to $S_1$. |
| | At the original fare of $P_e$, there will now be a surplus of rides, as $Q_s > Q_d$. Taxi drivers looking to fill their cabs will reduce their fare. As the fare decreases, quantity supplied will decrease, as some taxi drivers will look to spend their time or use their vehicle doing other, more profitable activities. Quantity demanded by passengers will increase as taxi rides become more affordable. This will continue until $Q_s = Q_d$, and equilibrium is restored at the new lower price of $P_1$ and new greater quantity of $Q_1$. |
| (b) (i) | CS before maximum price = $ACP_e$. |
| | CS after maximum price = $ABEP_{max}$. |
| | PS before maximum price = $P_eCH$. |
| | PS after maximum price = $P_{max}EH$. |
| | DWL = **BCE**. |
| (ii) | Consumption decreases from $Q_e$ to $Q_1$, as the number of taxi rides offered by taxi companies / drivers decreases because of the maximum price. CS will decrease (by BCD) because of reduced consumption. However, the gain in CS due to the lower fare of $P_{max}$ instead of $P_e$ is greater than the loss due to reduced consumption, so overall consumer surplus will increase from $ACP_e$ to $ABEP_{max}$. |
| | PS will decrease from $P_eCH$ to $P_{max}EH$. This is because taxi drivers will now receive a lower fare of $P_{max}$ instead of $P_e$, and the number of rides they provide decreases from $Q_e$ to $Q_1$, lowering their revenue and decreasing their surplus by $P_eCEP_{max}$. |
| | Overall, the loss in PS of $P_eCEP_{max}$ outweighs the small gain in CS, resulting in a net welfare loss represented by the deadweight loss of **BCE**. This is because the sum of CS and PS is no longer maximised following the maximum price control. |

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|---|---|
| (a) On the graph:<br>• S curve shifted to the right and labelled **AND**<br>• decreased price and increased quantity labelled.<br><br>Explains that the increase in supply will create a surplus of rides, which will result in a drop in taxi fares – including **TWO** of:<br>• surplus, as $Q_s > Q_d$ at $P_e$<br>• $Q_s$ falls<br>• $Q_d$ increases<br>• equilibrium restored (at $P_1$, $Q_1$). | (a) Explains in detail that the increase in supply will create a surplus of rides, which will result in a drop in taxi fares – including **ALL** of:<br>• surplus as $Q_s > Q_d$ at $P_e$<br>• $Q_s$ falls<br>• $Q_d$ increases<br>• equilibrium restored (at $P_1$, $Q_1$).<br><br>Refers to Graph One in the explanation. | |
| (b) Explains:<br>• 3 labels correct in Table One<br>• CS will decrease because of reduced consumption/Qd OR CS will increase because of the lower fare/price.<br>• PS will decrease because of lower price OR lower quantity sold (rides provided)<br>• There is a loss of allocative efficiency, as there is a net welfare loss OR deadweight loss OR the sum of CS and PS is no longer maximised. | (b) Explains in detail:<br>• CS will increase, as consumers are paying **lower fares**, which outweighs the impact of **lower quantity** of trips (which reduces CS)<br>• PS will drop, as taxi drivers will receive a **lower fare** AND the **number of rides they provide will drop**.<br>• Overall, the **loss in PS outweighs (not fully offset by) the gain in CS**, resulting in a loss of allocative efficiency resulting in a deadweight loss This is because the sum of CS and PS is no longer maximised following the maximum price control. | (b) Explains in detail:<br>• CS will increase as, consumers are paying **lower fares**, which outweighs the impact of **lower quantity** of trips (which reduces CS)<br>• PS will drop, as taxi drivers will receive a **lower fare** AND the **number of rides they provide will drop**.<br>• Overall, the **loss in PS outweighs (not fully offset by) the gain in CS**, resulting in a loss of allocative efficiency and deadweight loss. This is because the sum of CS and PS is no longer maximised following the maximum price control. |

| N1 | N2 | A3 | A4 | M5 | M6 | E7 | E8 |
|---|---|---|---|---|---|---|---|
| Very little Achievement evidence, partial explanations.<br><br>**N0** No response; no relevant evidence | Some Achievement evidence, partial explanations. | Most Achievement evidence. | Nearly all Achievement evidence. | Some Merit evidence.<br><br>(a) OR one of (b)<br>Must refer to graph(s) or Table One. | Most Merit evidence.<br><br>(a) AND one of (b)<br>Must refer to graph(s) or Table One. | Excellence evidence. One part may be weaker AND integrates relevant information from Graph Two or Table One into explanation. | All points covered.<br><br>AND integrates relevant information from Graph Two or Table One into explanation. |

| Question Two | Sample answers / Evidence |
|---|---|
| (a) (i) | <u>Elastic – Table Two</u><br>Tariff revenue for the government: $3 million decrease.<br>Change in allocative efficiency: $2.85 million gain. |
| (a) (ii) | If the imported goods are **elastic** in demand:<br><br>• Consumer surplus will increase by $8.35 million. This is because consumers pay a lower price of $40 after tariff removal, compared to $50 before, and they consume 330 000 units more, i.e. 1 million units instead of 670 000 units (therefore, more units from which to gain consumer surplus).<br>• Producer surplus will decrease by $2.5 million. This is because producers receive a lower price of $40 after tariff removal, compared to $50 before, and sell 240 000 fewer units, i.e. 130 000 units instead of 370 000 units (therefore, fewer units from which to gain producer surplus).<br>• Government revenue from tariff decreases by $3 million, as they no longer get the $10 tariff per unit of the 300 000 units of imported goods. Hence, they have less income to spend elsewhere in the economy<br><br>Allocative efficiency increases (is achieved), as the gain in CS outweighs the combined loss in PS and government revenue, so there is a net welfare gain of $2.85 million and there is no deadweight loss. (The sum of CS and PS is now maximised.) |
| (b) | <u>Inelastic – Table Three</u><br>Change in consumer surplus: $6 million increase.<br>Change in producer surplus: $2.5 million decrease. |
| (c) | <u>Consumer surplus</u><br>When demand is elastic, quantity demanded increases proportionally more when price falls. CS increases by $2.35 million more if demand is elastic because the same decrease in price increases quantity demanded by 330 000 units, while the inelastic demand results in an increase of 100 000 units.<br><u>Producer surplus</u><br>There is no difference in the change in PS when elasticity of demand is different, as for both graphs the quantity supplied falls to 130 000 and the price received falls to $40. Hence, PS decreases by $2.5 million for both elastic and inelastic demand. |

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|---|---|
| (a) (i) One correct calculation for Table Two.<br><br>(ii) Explains:<br>• CS will increase because consumers pay a lower price OR consume more.<br>• PS will decrease because producers receive a lower price OR sell fewer units.<br>• Government revenue from tariff decreases so less to spend elsewhere OR explains how the $3 million figure is obtained OR valid explanation of other tax impact OR valid graph/table reference<br>• Allocative efficiency increases (is achieved), as there is a gain in CS, OR there is no DWL, OR the sum of CS + PS is maximised.<br><br>(b) One correct calculation for Table Three.<br><br>(c) Explains:<br>• CS will increase by more for elastic demand (must include valid reason or graph/table reference )<br>• PS will decrease by the same amount for elastic and inelastic demand (must include valid reason or graph table reference) | (a) Explains in detail:<br>• CS will increase because consumers pay a **lower price** AND **consume more**.<br>• PS will decrease because producers receive a **lower price** AND **sell fewer units**.<br>• Government revenue from tariff decreases so less to spend elsewhere OR explains how the $3 million figure is obtained OR valid explanation of other tax impact<br>• Allocative efficiency increases (is achieved), as the **gain in CS outweighs the combined loss in PS and government revenue**.<br><br>(c) Explains in detail:<br>• CS will increase by more for elastic demand as QD increases by more<br>**OR**<br>• PS will decrease by the same amount for elastic and inelastic demand as QS declines by the same amount.<br>(Detailed explanations include figures.) | (a) Explains in detail:<br>• CS will increase because consumers pay a **lower price** AND **consume more** (more units to from which to gain surplus).<br>• PS will decrease because producers receive a **lower price** AND sell **fewer units** (fewer units to from which to gain surplus).<br>• Government revenue from tariff decreases so less to spend elsewhere OR explains how the $3 million figure is obtained OR valid explanation of other tax impact<br>• Allocative efficiency increases (is achieved), as the **gain in CS outweighs the combined loss in PS and government revenue**.<br><br>(c) Explains in detail:<br>• CS will increase by more for elastic demand as QD increases by more<br>**AND**<br>• PS will decrease by the same amount for elastic and inelastic demand as QS declines by the same amount.<br>(Detailed explanations include figures.) |

| N1 | N2 | A3 | A4 | M5 | M6 | E7 | E8 |
|---|---|---|---|---|---|---|---|
| Very little Achievement evidence, partial explanations.<br><br>**N0** No response; no relevant evidence | Some Achievement evidence, partial explanations. | Most Achievement evidence. | Nearly all Achievement evidence. | Some Merit evidence.<br>(a) OR (c)<br>Must refer to graph(s) or table(s). | Most Merit evidence.<br>(a) OR (c)<br>Must refer to graph(s) or table(s). | Excellence evidence. One part may be weaker AND integrates relevant information from the graphs and tables into explanation. | All points covered AND integrates relevant information from the graphs and tables into explanation. |

| Question Three | Sample answers / Evidence |
|---|---|
| (a) (i) | Change in consumer surplus = $P_2BCP_1$.<br>Change in producer surplus = $P_1CEP_3$.<br>Tax revenue for the government = $P_2BEP_3$.<br>Deadweight loss = $BCE$. |
| (ii) | See **Appendix Two**. |
| (b) | Consumer surplus decreases by $P_2BCP_1$ because the price they pay increases from $P_1$ to $P_2$ and their consumption decreases from $Q_1$ to $Q_2$ units after the indirect tax.<br><br>Producer surplus decreases by $P_1CEP_3$ because the price they receive decreases from $P_1$ to $P_3$ and they sell fewer units, i.e. quantity sold decreases from $Q_1$ to $Q_2$ units after the indirect tax.<br><br>The government gains tax revenue of $P_2BEP_3$, which may be used in programmes to raise awareness or educate society about the negative impact on health of sugary foods.<br><br>There is a loss of allocative efficiency as a result of the indirect tax because the gain in tax revenue by the government is not enough to offset the combined loss of CS and PS, so there is a net welfare loss represented by the deadweight loss of BCE. This means that the sum of CS and PS is not maximised.<br><br>There is a loss of allocative efficiency as a result of the quota because although there is an increase in PS, the gain in PS due to the higher price received is not enough to offset the loss in PS due to decreased sales / limited quantity allowed to be sold, combined with the loss in CS, so there is a net welfare loss represented by the deadweight loss of $BCE$. This means that the sum of CS and PS is not maximised.<br><br>Both policies are equal in effectiveness in that they both reduce consumption from $Q_1$ to $Q_2$ units. However, because of the extra revenue the government receives from the indirect tax, it could be used to increase awareness through education or marketing / promotional information; so that consumption will decrease below $Q_2$ units. OR Although both policies appear to be equal in effectiveness because they both reduce consumption from $Q_1$ to $Q_2$ units, quota is likely to be more effective, as it is a legal limit with which producers and consumers are forced to comply, whereas the indirect tax will only discourage consumption, so consumers may still choose to consume more than $Q_2$ units. |

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|---|---|
| (a) TWO correct shadings (and labelling) on **Graph Six**:<br><br>TWO correct labels in Table Four<br><br>(b) Explains:<br>• CS decreases, as they are paying higher prices OR are consuming a smaller quantity.<br>• PS decreases, as they are receiving lower prices OR are selling less.<br>• Government gains tax revenue which can be spent elsewhere OR valid graph reference<br>• There is a loss of allocative efficiency because there is a net welfare loss OR there is deadweight loss OR the sum of CS and PS is not maximised. | (b) Explains in detail:<br>• CS decreases, as they are **paying higher prices** AND are consuming a **smaller quantity.**<br>• PS decreases, as they are receiving **lower prices** AND are **selling less.**<br>• Government gains in tax revenue, which can be spent elsewhere, e.g. used in programmes to raise awareness<br>• There is a loss of allocative efficiency as a result of indirect tax because the **gain in tax revenue by the government is not enough to offset the combined loss of CS and PS**, so there is a net welfare loss represented by the deadweight loss of BCE. This means that the sum of CS and PS is not maximised.<br>• There is a loss of allocative efficiency as a result of the quota **because the gain in PS** due to the higher price received **is not enough to offset** the loss in PS due to decreased sales / limited quantity allowed to be sold, combined with the **loss in CS**, so there is a net welfare loss represented by the deadweight loss of BCE. This means that the sum of CS and PS is not maximised. | (b) Explains in detail:<br>• CS decreases, as they are **paying higher prices AND consuming a smaller quantity**<br>• PS decreases, as they are receiving **lower prices** AND are **selling less**<br>• Government gains tax revenue, which can be spent elsewhere, e.g. used in programmes to raise awareness<br>• There is a loss of allocative efficiency because **the gain in tax revenue by the government is not enough to offset the combined loss of CS and PS** so there is a net welfare loss represented by the deadweight loss of BCE. This means that the sum of CS and PS is not maximised.<br>• There is a loss of allocative efficiency as a result of the quota because the **gain in PS** due to the higher price received **is not enough to offset the loss in PS** due to decreased sales / limited quantity allowed to be sold, combined with the **loss in CS**, so there is a net welfare loss represented by the deadweight loss of BCE. Thus, the sum of CS and PS is not maximised.<br>• Both policies are equally effective, as consumption decreases by the same amount ($Q_1$ to $Q_2$).<br>• However, because of the extra revenue gained from the indirect tax, the government could use this to increase awareness through education or marketing / promotional information, so that consumption will decrease below $Q_2$ units OR the quota is likely to be more effective, as it is a legal limit with which producers and consumers are forced to comply, whereas the indirect tax will only discourage consumption, so consumers may still choose to consume more than $Q_2$ units. |

| N1 | N2 | A3 | A4 | M5 | M6 | E7 | E8 |
|---|---|---|---|---|---|---|---|
| Very little Achievement evidence, partial explanations. | Some Achievement evidence, partial explanations. | Most Achievement evidence. | Nearly all Achievement evidence. | Some Merit evidence. Must refer to graph(s) or Table Four | Most Merit evidence. Must refer to graph(s) or Table Four | Excellence evidence. One part may be weaker AND integrates relevant information from both graphs and Table Four into the explanation. | All points covered AND integrates relevant information from both graphs and Table Four into the explanation. |

**N0** No response; no relevant evidence

## Cut Scores

| Not Achieved | Achievement | Achievement with Merit | Achievement with Excellence |
|---|---|---|---|
| 0 – 6 | 7 – 12 | 13 – 18 | 19 – 24 |

**Appendix One – Question One (a) (i)**

**Graph One: The New Zealand taxi market**
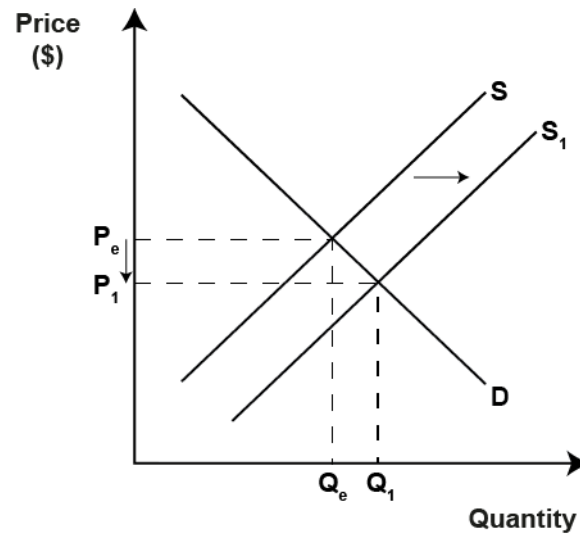


**Appendix Two – Question Three (a) (ii)**

**Graph Six: Market for sugary foods – quota**