ai) Identify the trend in sugar prices from 2011 to 2013. **[1]**
Downward trend.

aii) Explain the trend identified in part (i). **[2]**

- The downward trend can be explained by the surplus, generated as a result of production being greater than consumption, in each year.

b) Using a diagram, explain how import tariffs as mentioned in Extract 1 would help the U.S. sugar producers. **[3]**

Import tariffs refer to a tax on imports. Figure 1 below illustrates the effects of a specific tariff on a particular good e.g. sugar. Suppose $D_{domestic}$ is the U.S. consumers' demand curve for sugar while $S_{domestic}$ is the U.S. producers' supply curve of sugar.

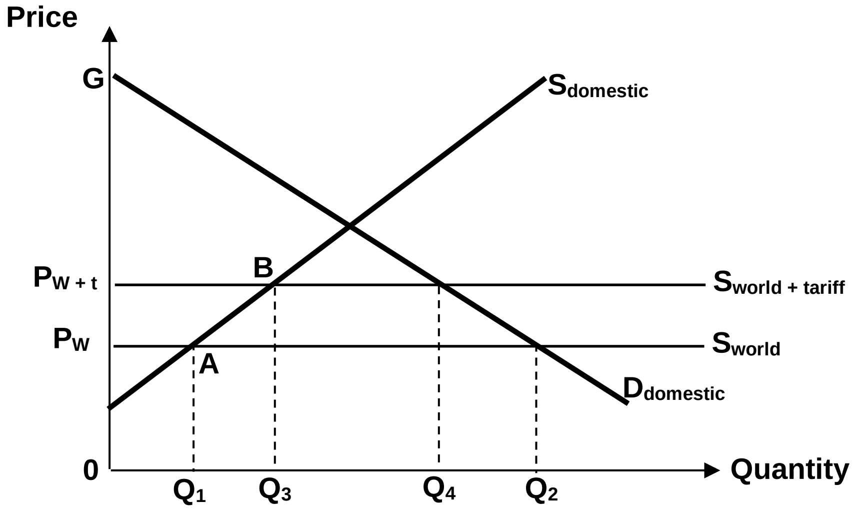

Figure 1: Effects of Import Tariffs on U.S. sugar market

Assume the world price is initially P_W and the world supply curve for U.S. consumers is shown by S_{world}. At P_W, U.S. producers are only willing to supply Q_1 units of sugar. If a specific tariff is now imposed on imports, this means that S_{world} will now shift upwards to $S_{world + tariff}$. This also implies that P_W will <u>rise</u> to P_{W+t}. At P_{W+t}, U.S. producers are able to sell a larger quantity at a higher price, which increases their total revenue to $0P_{W+t}BQ_3$ compared to $0P_WAQ_1$ before the tariff is imposed.

c) With reference to Extract 2, explain whether corn syrup producers should be worried about their share of the sweetener market. [6]

Thesis: Corn syrup producers should be worried about their share of the sweetener market

Sugar and corn syrup are substitutes in consumption, as both of them can be used as sweetener in soda. Since the price of sugar fell, quantity demanded for sugar will increase which leads to a fall in the demand for corn syrup. That leads to a fall in equilibrium quantity for corn syrup, which leads to a fall in their share of the sweetener market.

Besides the fall in price of sugar, demand for corn syrup has also fallen as consumer sentiment turned towards it because studies linking high fructose corn syrup with obesity turned off consumers, thus changing their taste and preferences. With a further fall in demand of corn syrup, their share of the sweetener market might fall too.

Anti-thesis: Corn syrup producers should not be worried about their share of the sweetener market

Although the above points to a fall in demand for corn syrup, the fall in demand might not be drastic as food producers would have to change recipes, edit product labels and retrofit factories, which will increase the cost of production if they change to using sugar. As such, sugar prices would have to remain consistently low to trigger a shift to the use of sugar as sweetener since prices of corn syrup has remained typically lower then sugar prices as mentioned in Extract 2.

In addition, consumers may have grown accustom to the taste of corn syrup in food and as such, might not wish to change to sugar. Because of these reasons, the fall in demand for corn syrup will not be drastic.

d) Explain one possible factor that determines the impact of a subsidy, like those given in Extract 3, on government expenditure. [2]

Price of sugar
When the price of sugar increases, the sugar industry will be willing to pay more for sugarcane. As such, the demand for sugarcane and hence the price increases. Thus, to ensure there is sufficient sugarcane being channelled to the ethanol industry, the government must subsidies more to help pay for the higher factor input cost, thereby increasing the government expenditure.

Other acceptable factors include
Size of subsidy
Time period for which the subsidy is given
PED of the subsidised commodity

e) Discuss the extent to which theory of comparative advantage explains why Brazil is the top exporter of sugar. [8]

<u>Thesis: Large production of sugar stem from comparative advantage</u>

The theory of comparative advantage states that countries can gain in terms of an increase in output and consumption from mutual trade if they specialize in producing (and exporting) those goods that they have relatively lower opportunity cost compared with other countries, provided the opportunity cost of various goods differ.

Opportunity cost is defined as the benefits of the next best alternative forgone. As such, by examining the opportunity cost of producing a certain good for each country, a country can specialize in what they have comparative advantage in (i.e. lower opportunity cost) and thus, export that good to another country, while importing goods that they do not have comparative advantage in.

Using the concept of opportunity cost, countries know where their comparative advantage lies and this will help them to decide on which good to specialize in and thus, export to other countries. The differences in opportunity cost arise because countries have different endowments of factors of production. As such, in this case, Brazil has comparative advantage in the production of sugar due to its natural endowments such as land space and favourable weather conditions as stated in Extract 3 and hence explains why they are a top exporter of sugar.

Anti-thesis: Large production of sugar doesn't stem from comparative advantage but other reasons

The theory of CA is based on a number of assumptions. These assumptions include no transport costs and no protectionist measures. However, in reality, there are transport costs and protectionist measures, which mean countries, would not specialises that much, thereby limiting the benefits as postulated by the theory. As such, this reality weakens the argument that comparative advantage contributes significantly to Brazil being the top exporter.

Based on Fig 3, the depreciation of the Brazilian Real against the US dollars over the years makes the price of sugar in US$ lower, thereby increasing its price competitiveness of sugar exports.

Other acceptable reason: possible protectionist measures.

In conclusion, the theory of Comparative Advantage does help explain to a small extent to why Brazil specialises in sugar but it is insufficient to justify why they are a top exporter as there are other forms of government intervention to propel Brazil as the top exporter of sugar.

Knowledge, Application, Understanding and Analysis		
L3	For a developed discussion on the extent on why Brazil is a top exporter of sugar	6 - 8
L2	For a developed explanation on why Brazil is a top exporter of sugar For an undeveloped discussion on why Brazil is a top exporter of sugar.	3 - 5
L1	Smattering of valid points	1 - 2

f) Discuss the view expressed in Extract 1 that protectionist policies on sugar in the U.S. are irrational. [8]

Thesis: The protectionist policies are irrational.

1. **Higher sugar prices for consumers**
   Protectionist policies have resulted in higher prices for sugar for consumers. Tariffs imposed on sugar imports by the US government have raised prices for domestic consumers in the US. This will reduce consumer surplus in the market for sugar. This would also decrease the supply of products that use sugar as a factor input, increasing their prices as well. Also, there may be allocative inefficiency as the higher prices are possibly not reflective of the marginal cost of sugar, as tariffs are not a part of the social cost of the production of sugar. Thus the price may not act as an effective signal of marginal social costs in the market for sugar.

2. **Retrenchment of workers due to higher costs of production for firms that use sugar as a factor input**
   Firms that use sugar in their products will have to pass the increase in costs of production to their consumers, and they may even retrench workers to cover these cost increases, resulting in "thousands of lost jobs". As sugar is a staple in many diets and products, the quantity of consumers and producers affected by these effects may number in the "hundreds of millions". This is a substantially large cost to society that may outweigh the benefits of protectionism.

3. **Retaliation of protectionist policies**
   The protectionist policies may invite retaliatory protectionism from other countries as well, resulting in lower welfare for the exporters in the US. The theory of comparative advantage shows that free trade may have many benefits for the countries involved. However, with retaliatory protectionist policies, the exporters in US may face higher tariffs for their exports overseas, reducing the demand for their products and thus their profits.

Anti-thesis: The protectionist policies are not necessarily irrational.

1. **Protectionism against dumping**
   The protectionist tariffs against imports of sugar may protect the domestic market from dumping from large exporters of sugar such as Brazil. Brazil is the top producer of sugar globally and without the tariffs in the US, sugar imports from Brazil may drive out rival producers in the US and Brazil producers may eventually monopolize the market. Also, the producers of sugar in Brazil are highly subsidized by their government as well, leading to unfair competition. Hence, there is a case for the dumping of sugar by Brazil in the US. Tariffs are thus justified to reduce the imports and increase domestic production. However, it is possible that Brazil sugarcane farmers are more efficient than US farmers due to their favourable weather environments, resulting in a lower opportunity cost of producing sugar. This may end up hurting the US consumers of sugar as they cannot enjoy the benefits of trade from more efficient producers of sugar in Brazil.

2. **Protectionism against loss of employment in US**
   Protectionist policies have helped maintain domestic employment. Without the policies, many jobs may be lost as producers of sugar may go out of business competing against cheap foreign imports of sugar. However, this may be just "artificial support" for the domestic producers that are inefficient in production. The firms may not be incentivized to cut their costs or improve their efficiency, and they may eventually "build their lives around it", seeing it as an entitlement, leading to a poor application of tariffs.

3. **Strategic reasons**
   The protectionist policies may be necessary for strategic reasons. Sugar is a staple of many diets and thus the government may wish to protect the domestic supply to reduce reliance on foreign exporters for such a essential commodity.

Conclusion

The protectionist policies may seem irrational given the large monetary costs to society from the increase in prices due to the tariffs imposed. Also, higher sugar prices may also affect the manufacturers that use sugar in their products. However, the benefits are measurable as well, given that there may be dumping of sugar that may lead to thousands of lost jobs in the US domestic sugar market. There is a cost-benefit tradeoff between the government, the sugar industry, the manufacturers of food products using sugar and consumers.

Ultimately, the cost-benefit analysis will rely on the underlying reasons for protectionism, one of which is the protection against dumping. This relies on the measurement of efficiency of the sugar producers in US as compared to the rest of the world, which may be difficult to determine. However, the US government may have political concerns that force them to continue the protectionist policies even if they are determined to be irrational from an economics point of view. The long-term effects of these policies will increasingly depend on the actions taken by domestic producers, foreign exporters and foreign governments as well.

In the long-term, the government should consider other policies such as promoting innovation in the technology for agriculture to improve the productivity and efficiency of sugar farmers, making protectionism unnecessary.

Knowledge, Application, Understanding and Analysis		
L3	For a well-developed discussion on the effectiveness of protectionist policies in the US sugar market that is supported by relevant contextual information.	7-8
L2	For an undeveloped discussion on the effectiveness of protectionist policies that may or may not be applied in the context of the US sugar market.	4-6
L1	For an answer that shows brief knowledge on the concept of protectionism.	1-3