

Question 1

Milk Market on the Milky Way

Extract 1: Rising formula milk price

Formula milk manufacturers have been spending more on research and development as well as marketing, pushing the wholesale prices of their products up, and in turn resulting in the higher prices seen at retail stores, the Competition Commission of Singapore (CCS) has found. A standard can of 900 grams of infant formula purchased from a regular supermarket costs about S\$56 on average, compared to \$25 in 2007

The CCS report found that manufacturers spend heavily on research and development as well as marketing campaigns that contain “premiumisation” messages in order to build consumer loyalty and make their products appear to be higher quality. Manufacturers introduce new ingredients that contribute to attributes desired by parents and make promises like improving overall mental function, promoting a healthy intestinal tract and aiding brain and eye development. A premium image is important to these brands because they compete against other brands and their products based on brand name, nutrition and safety. Such strategies appear to have worked, with premium and specialty formula milk making up an estimated 95 per cent of total sales in 2015.

Source: Adapted from Channel NewsAsia, accessed 12 May 2017

Table 1: Price of staples over 10 years

Goods	2007	2017
Fresh Milk (1 litre pack)	\$2.63	\$2.81
Infant Formula Milk Powder (900gram tin)	\$25.42	\$56.06
Cheese (pack of 12 slices)	3.89	\$4.56
Hen eggs (10)	1.69	\$2.17
Ordinary white bread (400gram)	\$1.21	\$1.62
Thai Fragrant Rice (5 kg)	\$7.87	\$13.13

Source: Singapore Department of Statistics, accessed 27 May 2017

Figure 1: Changes in median income and price of infant milk powder in Singapore



Source: Various

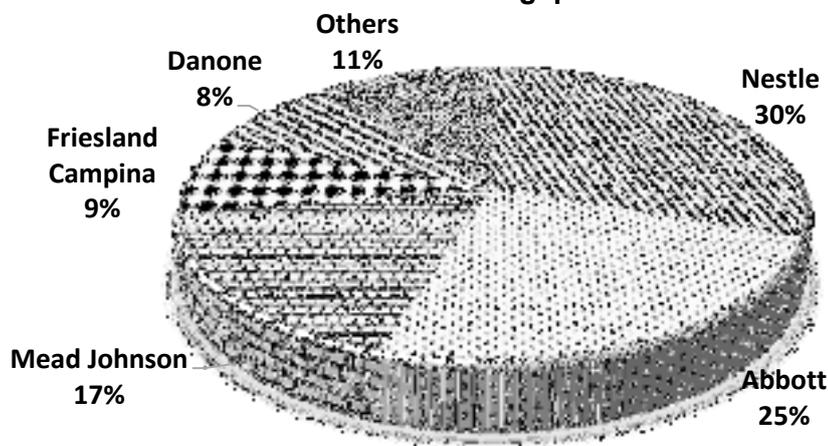
Extract 2: Children over one do not need formula milk

While parents may rely on health claims to choose a formula milk brand for their children, experts say such claims meant for children above one are a “marketing ploy” because the same nutrients can be found in everyday food.

Referring to nutrients like docosahexaenoic acid (DHA), taurine and choline which are prominently promoted on milk tins, paediatric dietitian Meave Graham from Child Nutrition Singapore said: “These nutrients are found in breast milk and in normal balanced diets. Children do not need special supplements of these nutrients.” These nutrients have been promoted by milk manufacturers as giving health benefits like brain and eye development, healthy immune system and helping fat digestion.

Source: Channel NewsAsia, accessed 30 May 2017

Figure 2: Market concentration of infant formula market in Singapore



Source: Channel NewsAsia, accessed 27 May 2017

Extract 3: Government shares concerns about rising prices of formula milk

The Singapore government shares the concerns of parents about the rising prices of infant formula milk and will take steps to ensure that options are available for their children, said Senior Minister of State for Trade and Industry (MTI) Koh Poh Koon.

A concentrated market, coupled with aggressive marketing and existing consumer preferences, have raised barriers for new players in the infant formula milk market in Singapore. Retailers such as supermarkets and pharmacies are keen to stock more of what consumers demand which may further reinforce consumer brand loyalty. They also prefer to obtain formula milk supply only from local authorised distributors and do not consider parallel importing a viable alternative.

“The government will simplify and streamline import requirements as well as remove unnecessary barriers to bring in more options for parents” Koh said. He added that there are a number of formula milk products in Singapore across different brands that range from \$20 to over \$60 per 900g and regardless of brand and price, all milk products sold here must meet the safety and nutrient requirements set by the Agri-Food & Veterinary Authority.

“The Agri-food and Veterinary Authority (AVA) will also tighten its restrictions on labelling and advertising further, including prohibiting the use of nutritional and health claims, and idealised images for infant formula milk,” Koh said. On their part, parents should be careful about unsubstantiated claims from sellers of such products, he added.

Source: Adapted from Yahoo News Singapore, accessed 13 May 2017

Extract 4: United States' WIC Programme

In the United States, the Special Supplemental Nutrition Programme for Women, Infants, and Children programme (WIC) provides subsidies for infant formula milk. The programme believes that by providing needed assistance to low income mothers, it can help the development of their children and avoid future health issues.

The programme provides a benefit card for beneficiaries to use at authorised retailers. With the card, beneficiaries can purchase selected types and brands of infant formula milk at a discounted cost. Since the 1990's, only three manufactures have been chosen as the manufacturer of choice for the WIC programme. Though this programme does not provide great profit margins for the manufacturers, it is most likely part of the reason that the three WIC manufacturers maintain almost all market share in the United States.

Source: United States Department of Agriculture, accessed 28 May 2017

Questions

(a)	(i)	Compare the change in price of infant formula milk powder (900 grams) with that of Thai fragrant rice (5 kg) between 2007 and 2017.	[2]
		<ul style="list-style-type: none"> Prices of both infant formula milk and Thai fragrant rice have increased. Price of infant formula milk has increased by 120%, more than the price increase of Thai fragrant rice which is 66%. 	(1) (1)
	(ii)	With the use of a diagram, account for the change in the price of infant formula milk powder as mentioned in (i).	[4]
		<ul style="list-style-type: none"> Increase in demand: Increase in income (Fig 1) Fall in supply (Any 1) <ul style="list-style-type: none"> Increase in marketing and R&D costs (Ext 1, para 1), or Increase in COP due to new ingredients (Ext 1, para 2) Simultaneous increase in demand and supply → Adjustment process (shortage and upward pressure) Diagram 	(1) (1) (1) (1)
(b)		Explain how “premiumisation” affects the price elasticity of demand of infant formula milk.	[2]
		<ul style="list-style-type: none"> Premiumisation refers to the addition of new ingredients to the milk formula by producers and marketing those additions as factors leading to desired attributes to make their products appear to be of higher quality than that of their competitors (Ext 1, para 2) This will differentiate their products as consumers will not see their products as perfect substitutes to their competitors’. Thus, demand facing the firm will be more price inelastic. 	(1) (1)
(c)		Explain how the high price for infant formula milk in Singapore can represent a form of market failure.	[4]
		<ul style="list-style-type: none"> Any one of the sources of market failure <ul style="list-style-type: none"> Imperfect information: Over-estimated MPB of formula milk (Ext 2, para 2), or Market dominance: Oligopoly market structure leading to market power (Fig 2). Imperfect information <ul style="list-style-type: none"> Explain the over-estimation of MPB: Consumers thought the formula milk will be beneficial to their children. Explain $Q_{perceived}$ and $P_{perceived}$: Consumers maximise satisfaction by consuming at the output where $MPB_{perceived}$ equals to MPC, with quantity as $Q_{perceived}$ and price as $P_{perceived}$. Explain Q_{actual} and P_{actual}: If there was no imperfect information, consumers maximise satisfaction by consuming at the output where MPB_{actual} equals to MPC, at Q_{actual} and P_{actual}. Explain the market failure: Since $P_{perceived}$ is greater than P_{actual}, and $Q_{perceived}$ is greater than Q_{actual}, there is over-consumption and DWL. Market has failed. 	(1) (1) (1)

	<ul style="list-style-type: none"> ○ Thus, the high price ($P_{\text{perceived}} > P_{\text{actual}}$) represents a form of market failure. (1) ● Market dominance <ul style="list-style-type: none"> ○ Explain that the market structure of infant milk powder is oligopoly and firms have the ability to set prices. (1) ○ Thus, firms will maximise profits and produce at the output where $MR=MC$, with quantity as Q_0 and price as P_0. (1) ○ If the market was perfectly competitive, the competitive output level would be where $P=MC$ at Q_1 with price P_1. (1) ○ Since P_0 is greater than P_1 and Q_0 is lesser than Q_1, there is under-production and DWL. Market has failed. ○ Thus, the high price ($P_0 > P_1$) represents a form of market failure. (1) 	
(d)	Assess the factors that formula milk manufacturers would consider in deciding to supply a new formula milk product in Singapore.	[8]
	<ul style="list-style-type: none"> ● Objective of firms is to maximise profits which is revenue less costs. Thus, firms will consider the factors that directly affect the revenue and costs in supplying the milk product in Singapore, as well as the other factors involved. ● Direct costs factors <ul style="list-style-type: none"> ○ Cost of entering and supplying to the Singapore market → Oligopoly market structure → high BTEs such as supermarkets unwilling to stock up the brands of milk powder that are not in high demand (Ext 3, para 2) → firms may have to incur additional costs to convince supermarkets to display and stock up their products <ul style="list-style-type: none"> ▪ Could be a significant factor to consider as supermarkets are also concerned with their profits. Costs to convince the supermarkets could be high. ○ Costs of competing → Oligopoly market structure → high degree of non-price competition i.e. marketing and R&D to build up brand loyalty (Ext 1, para 2) → incur high marketing costs to compete with the incumbent firms. <ul style="list-style-type: none"> ▪ Could be a significant factor to consider as such strategies to compete “appear to have worked” for the incumbent firms (Ext 1, para 2) → New firms will have to spend greatly on such strategies as well. ● Direct revenue factors <ul style="list-style-type: none"> ○ Oligopoly market structure → existing firms could be making LR supernormal profits → Induce new firms to enter and supply to the Singapore market. ○ High brand loyalty to the incumbent firms (Ext 1, para 2) → demand facing new firms may be low as consumers are unwilling to switch to other brands. (XED is positive but <1) <ul style="list-style-type: none"> ▪ Could be a significant factor to consider as firms may not be able to have enough demand in the short run and could affect profitability. ● Other factors <ul style="list-style-type: none"> ○ Existing information <ul style="list-style-type: none"> ▪ Singapore government is beginning to intervene in the market by introducing more competition and reducing the imperfect information in the market (Ext 3, paras 3 & 	

		<p>4) → Market may become more competitive in the long run and consumers may turn to non-formula milk and other alternatives that also fulfil the same safety and nutritional requirement (Ext 3, para 3) → Demand facing the firm may fall in the long run.</p> <ul style="list-style-type: none"> • Significantly factor to consider as it may affect the long run profitability of the firms, <ul style="list-style-type: none"> ▪ Increasing income of consumers (Fig 1) → Formula milk is seen as a normal or luxury goods to most people → as median income increases in Singapore, demand for infant formula milk could be expected to increase. ▪ Birth rate: Falling birth rate in Singapore → demand for infant formula milk could fall over time. <ul style="list-style-type: none"> • May affect the long term profitability ○ Perspective of other stakeholders: Actions of the rival firms → under oligopoly market structure, incumbent firms may individually or collude together to strengthen the BTEs to prevent new firms from entering the market e.g. cartel, predatory pricing or even bargain with the supermarkets to block the stocking up of other brands etc → costs to the firms to enter the market could be even higher. <ul style="list-style-type: none"> ▪ Not a major concern as collusion is unlikely to occur in Singapore due to CCS's close monitoring of the market. ○ Constraints: Excess capacity → Firms will also have to consider their own production constraints → large excess capacity that could enjoy IEOS will encourage firms to increase output to enter and supply to the Singapore market as AC will fall and profitability will increase. On the other hand, if increasing output to supply to the Singapore market will lead to IDEOS, firms will have to incur a higher AC leading to lower profits. • Judgement → objective of firms is to maximise profits. Thus, firms will aim to earn high supernormal profits in the long run. As the Singapore government is starting to intervene to make the market more competitive and consumers more informed, the demand and supply conditions and thus, the direct costs and revenue factors in the market may change drastically over time. Thus, the extent and effects of government intervention could be the most important factors that firms may take into account (or any other factor that students can justify). 	
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Level	Knowledge, Application, Understanding & Analysis	Marks
L2	<ul style="list-style-type: none"> • A well-developed answer on direct costs & revenue and other factors that firms will consider. • Well supported with economic theories and case materials. • A well-explained answer on either the costs & revenue factors or the other factors 	<p>4-6</p> <p>Max 4</p>
L1	<ul style="list-style-type: none"> • Brief, one-sided answer that focuses on either the cost or the revenue factors, or a smattering of factors. • Limited use of case materials or examples. 	1-3

E	<ul style="list-style-type: none"> Application of relevant data and own knowledge to make judgment on the importance of factors. 	1-2
(e)	<p>Discuss whether provision of subsidies such as the WIC programme in the US would be the most appropriate way of responding to the rising formula milk prices in Singapore.</p>	[10]
	<ul style="list-style-type: none"> WIC programme provides subsidy to the low income consumers in the US. The objective is to help the development of children from the low income families and avoid future health issues (Ext 4, para 1). Thesis: The WIC programme could be used to respond to the rising milk prices in Singapore <ul style="list-style-type: none"> A subsidy on low income consumers will increase the demand by the low income consumers, thus helping them to cope with the rising milk prices → Increases material SOL of the low income group → Diagram (Market demand and supply diagram to show equilibrium price and quantity. Another diagram to show the demand by low income consumers only with horizontally supply curve as they follow market price. Demand by low income consumers will increase due to subsidy.) Anti-thesis: The WIC programme may not be the most appropriate way of responding in Singapore. <ul style="list-style-type: none"> One reason for the high price in Singapore is due to rising income and thus rising demand for formula milk which is generally deemed as a normal / luxury good. Since there are cheaper alternatives in the market that fulfil the same safety and nutritional requirements as formula milk (Ext 3, para 3), there may not be a need to subsidise it. In addition, consumers prefer formula milk, and thus leading to higher demand, due to imperfect information as they over-estimated the benefits (Ext 2, para 1). With a subsidy, the cost of consumption to the lower income group will decrease, thus worsening the problem of over consumption, leading to a bigger DWL. Overall market demand and equilibrium price will increase. → Market failure and demand supply diagrams. High price is also due to the firms having market power to set price above MC. The WIC programme selects milk producers to be the “producer of choice” for the programme (Ext 4, para 2). This will give the selected producers even greater market power as demand facing them will increase. The DWL will increase and the price to the non-subsidised consumers will be even higher → Diagram (AR & MR shift right) However, with greater market power, the producers may be able to force the smaller firms out of the market. With lesser competition, firms may be able to cut down on their marketing and R&D costs and pass on the costs savings to consumers. Other policies could be more appropriate <ul style="list-style-type: none"> Reduce imperfect information → government could tighten its control on labelling and advertising ((Ext 3, para 4) or educate the public → Consumers understand the true benefits of infant 	

		<p>formula milk and thus reduce the overconsumption → reduces market demand and equilibrium price will fall → Diagram</p> <ul style="list-style-type: none"> ○ Increase more competition → Government can remove unnecessary barriers and simplify its imports requirements to allow more firms to enter the market (Ext 3, para 3) → This will reduce the demand and market power of firms → With a lower demand, ability to set prices decrease and market supply will increase → prices decrease → Diagram. <ul style="list-style-type: none"> ● Evaluation <ul style="list-style-type: none"> ○ Subsidising the consumers, such as the WIS programme in the US, could help the low income consumers to cope with the rising formula milk prices in Singapore. ○ However, this comes at the expense of the consumers at large as the market demand and the demand facing the firms will increase → Price will continue to increase further. ○ If the objective of the Singapore government is the same as that of the US to help the low income group, and the Singapore government is prepared to compromise the market at large, a subsidy such as the WIS could be a way to respond. ○ However if the objective is to reduce the overall market price, a subsidy to the low income group only may not be appropriate. ○ No matter what the objective is, a subsidy should only be a short term measure as it will cause a strain on government's budget and distort the market. 	
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Level	Knowledge, Application, Understanding & Analysis	Marks
L2	<ul style="list-style-type: none"> ● A well-developed, balanced answer on the appropriateness of subsidies such as the WIC programme in Singapore. ● Well supported with economic theories and case materials. ● A well-explained one-sided answer on either the appropriateness or inappropriateness of subsidies such as the WIC programme in Singapore. 	5-7 Max 5
L1	<ul style="list-style-type: none"> ● A brief, one sided answer on either the appropriateness or inappropriateness of the WIC programme in Singapore. ● Limited usage of economic theories and case materials. 	1-4
E1	<ul style="list-style-type: none"> ● Provides a judgement on whether subsidies such as the WIS programme is appropriate, supported with well-reasoned justification. 	1-3

[Total: 30 marks]