



INSTITUTE OF ACTUARIAL
& QUANTITATIVE STUDIES

Subject: Business
Economics – Micro

Chapter:

Category: Assignment 2 –
Answers

1.

i.

- In an oligopolistic market there are only a few firms.
- There are generally significant barriers to entry.
- Under oligopoly there is a high degree of interdependence between firms. This means that firms have to take into account decisions made by other firms when making their price and output decisions.
- In an oligopolistic market structure, firms tend to have differentiated products and compete on price, quality and may engage on non-price competitive behaviour such as advertising.

ii.

- In an oligopolistic market there are only a small number of firms whereas in a monopoly there is just one firm.
- Under oligopoly there is a high degree of interdependence between firms. This means that firms have to take into account decisions made by other firms when making their price and output decisions. This is a problem that a monopolist does not have to worry about. Although there might be concerns about potential competitors entering if it sets prices too high.
- Under oligopoly each firm has only a share of the market demand curve whereas for a monopoly the market demand curve is the firm's demand curve.
- With oligopoly each firm may be selling either identical or differentiated products and they tend to compete with each other on both price and quality. A monopolist may produce just one good or a variety of goods.
- There are barriers to entry in both market structures although they need to be strong enough to block new firms' entry in the case of a monopoly. The existence of barriers to entry means that there is the potential to make abnormal profits in the long run in both market structures but clearly a monopolist would have the potential to yield superior abnormal profits compared to firms operating in an oligopolistic market structure.

2.

- i. C
- ii. B, C, D
- iii. D
- iv. A, B

3.

- i. Price discrimination occurs when firms sell the same product at different prices where the cost of supplying to different customers does not vary or the difference in price is not accounted for fully by any difference in the costs of supply. Price discrimination can be exercised in relation to types of markets geographically, types of consumers or the quantity purchased.

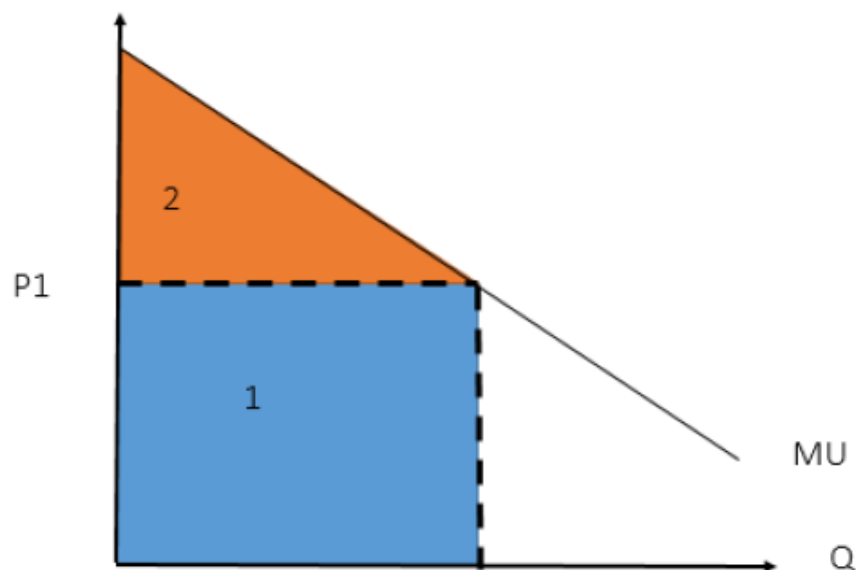
- ii. Price discrimination is less effective when goods can easily be resold into different markets, for example medications can be purchased by a consumer and later sold at a higher price on black markets to another. Price discrimination is not possible in this case. Medical treatment however is a service, it is received by an individual and cannot be performed on another. As a medical procedure cannot be resold in this way it is possible to charge different prices. For example, if a poor person pays a lower price for a dental filling than a rich person then they cannot resell their treatment to a rich person and charge a higher price for a filling. Whereas with a pharmaceutical product e.g. drug treatment for a disease, the price discrimination is harder because people can buy the product in the low cost market and resell it at a higher price in the high cost market. Another possible way to answer this question is to emphasize the control of supply. So for example, highly skilled heart surgeons have skills to operate on patients that few others have so they can easily price discriminate whereas a drug can easily be copied by making a generic version (even if it violates the intellectual property/ patent rights of the drug producer).
4. In a perfect competitive market many relatively small firms (in relation to the market size) produce an identical product with no barriers to entry. If a firm is able to exploit the economies of scale, long run production costs fall as output increases.
 - 1) Perfect competition relies on a large number of firms, each of which tends to be small relative to the overall market size. Whereas Economies of scale tend to be associated with firms that grow in size so that they can benefit from bulk buying, management or financial economies and so on. These are not generally possible in small firms and thus perfectly competitive markets and economies of scale are not compatible with one another.
 - 2) If a firm in a perfectly competitive market grows to exploit economies of scale, it will gain market power and will be able to cut its price and drive other firms out and so the market would no longer be perfectly competitive. This is the reason for perfectly competitive markets being rare and could only exist in an industry where significant economies of scale cannot be achieved.
 - 3) If a perfectly competitive firm was somehow to try and get economies of scale, then the excess profits would attract new entrants due to the absence of barriers to entry which in turn would prevent it getting to the size required to exploit economies of scale.
 5.
 - i. Comparing the marginal utility of travelling by bus or by taxi takes into account not just the financial element but also the opportunity cost of time and the convenience of travel, both of which affect consumer's utility. Using the equi-marginal principle the marginal utility of both goods relative to prices will be compared to determine the optimal quantity of bus and taxi travel. $MUA/MUB = PA/PB$

The marginal utility derived from travelling by bus relative to price is less than the marginal

utility derived from travelling by taxi relative to price.

Rationally a consumer who takes into account the cost of their time may find that the additional financial cost of travelling by taxi outweighs the opportunity cost of their time (as one assumes a taxi is faster than a bus as it would directly take someone between two locations). Thus on balance a rational consumer taking into account both time, money and convenience may select a more financially costly option as it has a higher marginal utility than the alternative (bus travel).

ii. MU, P



The total utility derived from using a taxi is shown by the area under the marginal utility curve. Total expenditure is the rectangular area (1) and the consumer surplus which is the excess utility relative to total expenditure is shown by the triangle

6.

i.

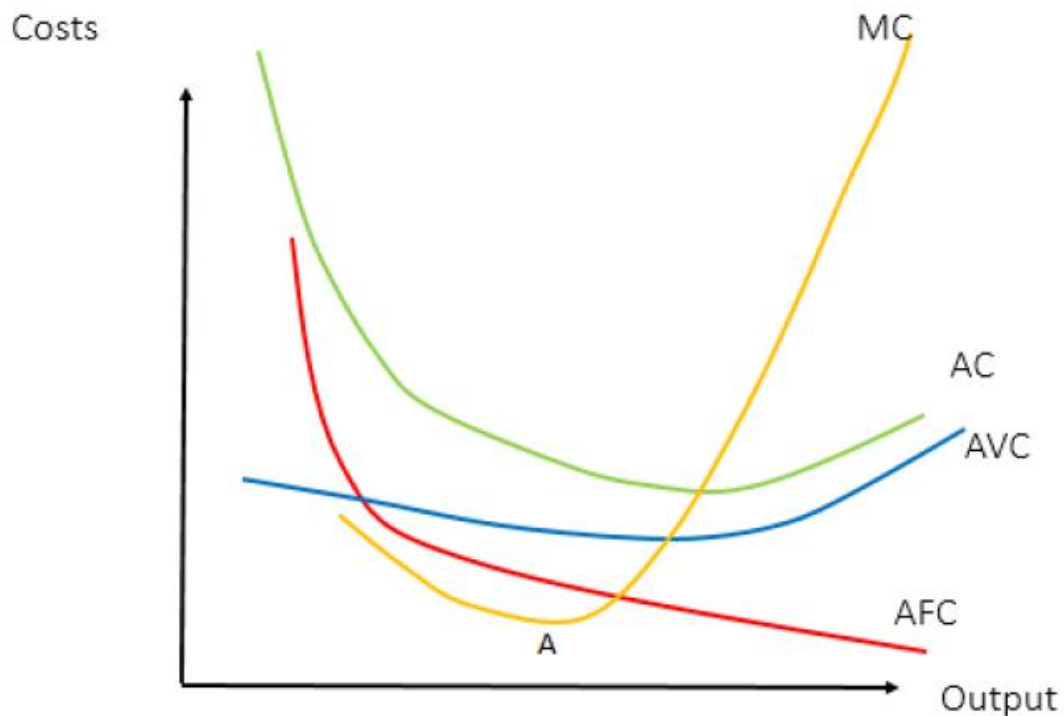
- A fixed cost for a cafe is any cost that does not vary with output for example the insurance, repayment on a loan for the premises or rent. Other appropriate costs could be standing charges on gas/electricity, telephone line/broadband.
- A variable cost for the cafe is any cost that varies directly with output. Therefore, inputs such as coffee, sugar, milk are good examples. If staff are paid hourly then that could also be appropriate as it will depend on how busy the cafe is and thus how many staff are on shift at

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any one time.

ii.



- iii. (a) Diminishing returns may be experienced in a cafe as they have a limited number of machines and the baristas may have to queue to get to a machine. The same issue could arise with processing bills, there is likely to only be one till and many staff could need to access it at once.
 (b) Point A on the diagram is where diminishing marginal returns set in. Point A is at the minimum point of the MC curve.

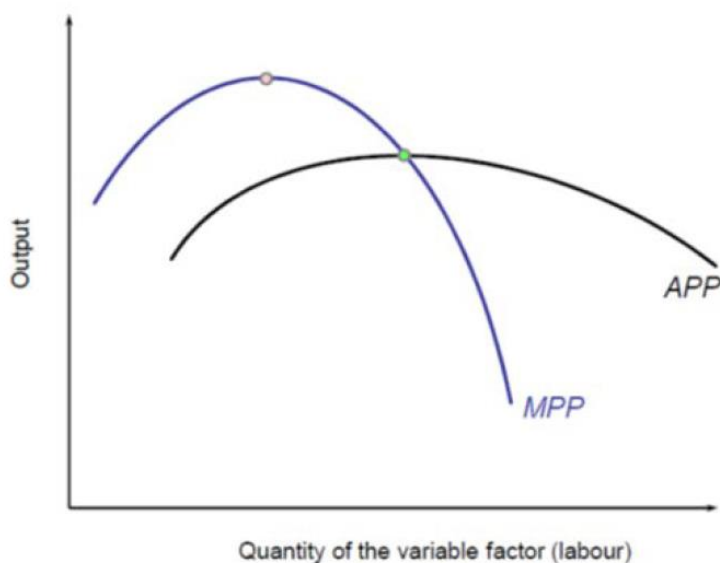
7.

- i. According to the law of diminishing returns as more of a variable factor is added to a given amount of a fixed factor then the marginal product (MP) and average product (AP) of the variable factor of production will eventually decline.
- ii. The law of diminishing returns implies that initially the marginal physical product curve (MPP) may rise but after a certain point, the marginal product will start to decline. The average physical product (APP) may also initially rise and will continue to do so as long as the marginal product is above the average product. Once the marginal product falls below the average product then the average product will also decline.

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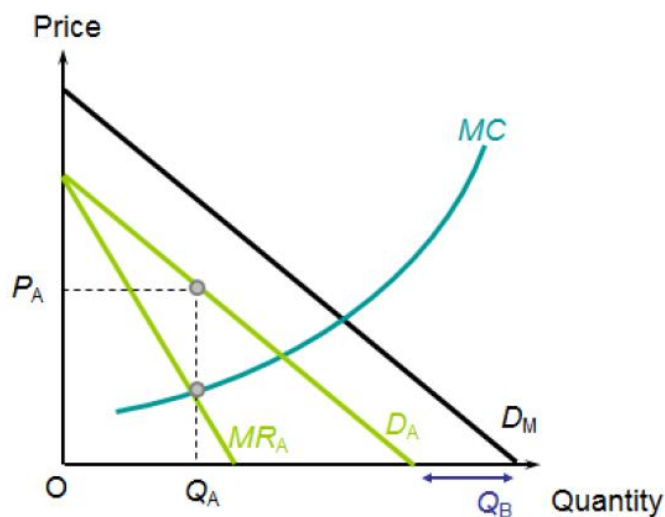
- iii. The law of diminishing returns means that both the marginal cost and the short run average total cost will have a U-shape, that is, decline initially as marginal and average product increase but then start to rise as marginal and average product start to decrease.



price from the market demand curve to arrive at its own demand curve and then sets its profit maximising output.

- ii. Firm A assumes Firm B produces Q_B . It deducts this amount at each price from the market demand curve DM to arrive at its own demand curve DA and associated marginal revenue curve MRA . It will then equate its marginal revenue (MRA) to its marginal cost (MC) giving

the resulting equilibrium price and output are P_A and Q_A respectively.

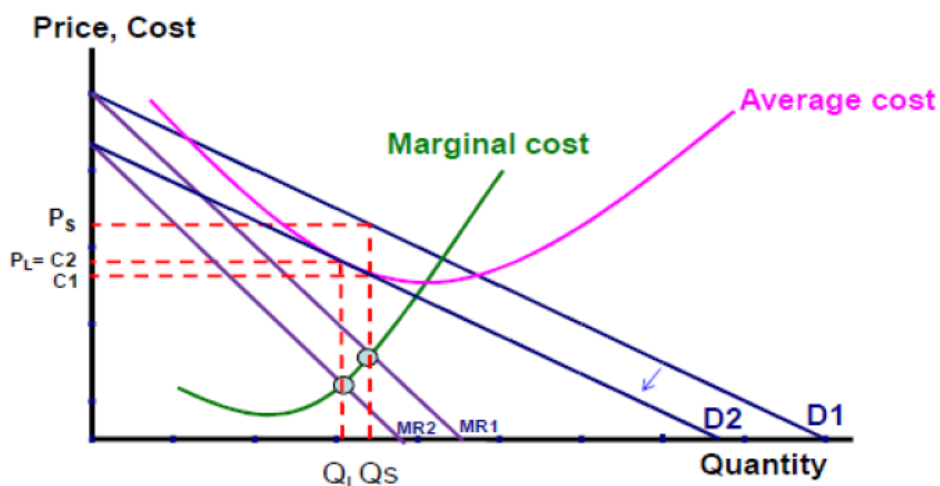


9. In

Q_s

is greater than average cost C_1 . This means new firms will enter the industry so the demand curve and marginal revenue curve shift to the left to D_2 and MR_2 respectively with price P_L and output Q_L . In the long run since price is equal to average cost at P_L and C_2 respectively, only normal profits are made which is consistent with the absence of barriers to entry

the short run the monopolistically competitive firm produces at P_s and and is making excess profits since P_s



10.

i. The law of diminishing returns

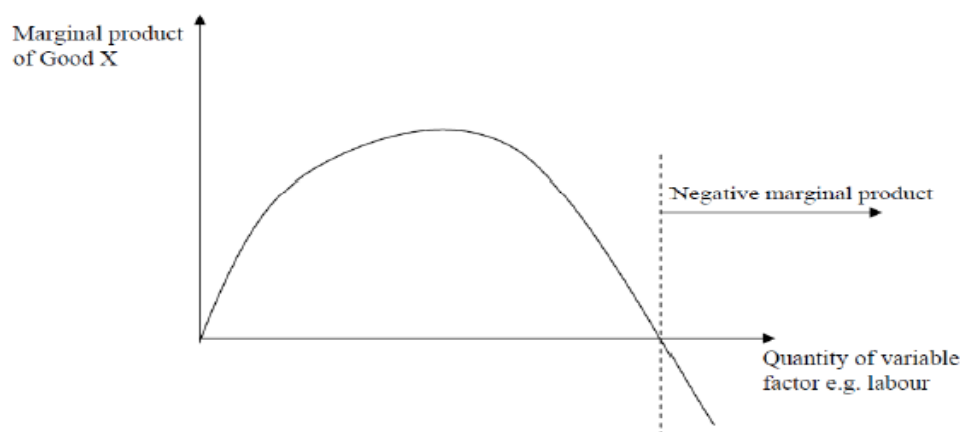
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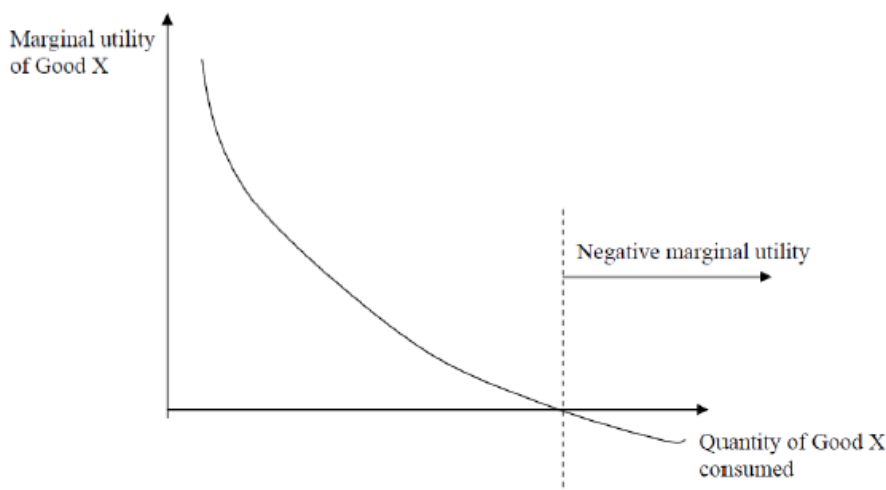
applies to the short run production process. It states that as you add increasing amounts of a variable factor of production to a given amount of a fixed factor of production, after a certain point the marginal product of the variable factors will decline.

By contrast the law of diminishing marginal utility applies to consumption. It states that as a consumer consumes increasing amounts of a given product then the marginal utility derived from the product will decline.

ii.



iii.



11. Diminishing marginal returns arise when as we add more of a variable factor to a fixed factor of production the additional output from each additional variable unit falls. In the context of a restaurant, the fixed factor of production would be the space in the kitchen or the dining area, the grills, ovens and stoves (or even the till point). The variable factor would be the staff (waiting or

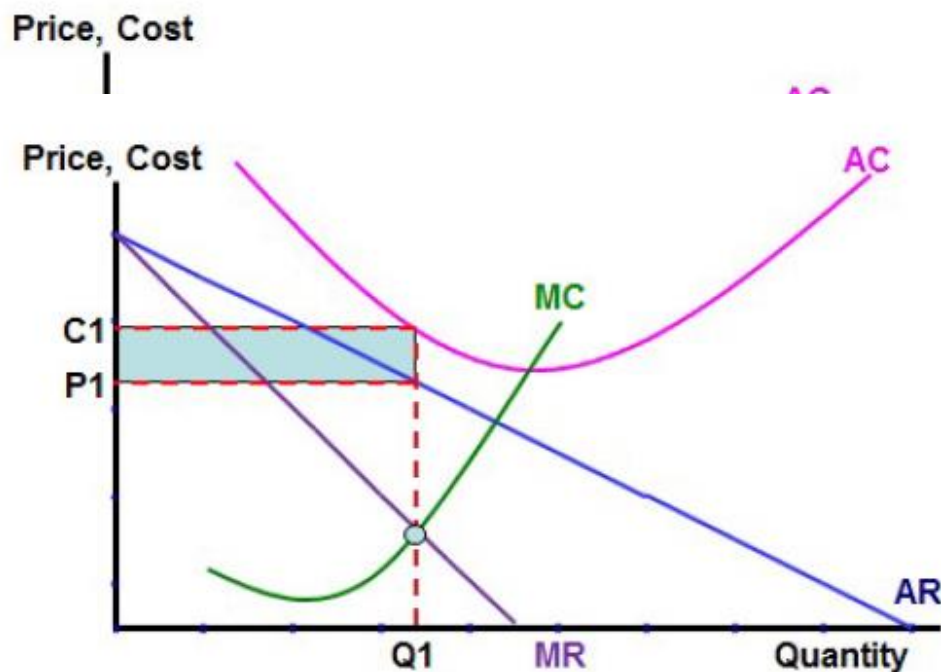
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kitchen staff). As we add more cooks or waiting staff, managing and co-ordinating their efforts becomes difficult; people may take the wrong orders out to tables, a dining room crowded with waiters would impede efficient service and fewer customers would be served.

12.
 - i. Collusive oligopoly is a situation when firms in an oligopoly agree to limit competition between themselves by such practices as agreeing on each keeping its market share, price fixing, setting output quota or limiting advertising.
 - ii. Firms who are looking to work together (be collusive) work best under the following conditions.
 - Very few firms – on a particular route or within a country/set of countries, the two airlines would find collusion easier if there are as few other competitors as possible.
 - Open about costs and production methods – the more open and honest the two airlines are with one another the better idea the two will have about whether they can work together.
 - Similar production methods and average costs – by having similar methods of operation, they are more similar and therefore price changes from one can easily be reflected in another.
 - Similar products – the two firms ideally need to offer the same sort of product, one offering long haul and the other short haul for example may not be compatible. The need to be able to agree on price and the more similar the produce the easier this is and the less is the incentive for diverging from an agreement.
 - Significant barriers to entry – both the airlines need to be able to keep other firms out of the market as a competitor could present an opportunity for breaking an agreement.
 - No government measures to curb collusion – in a market where the government has little control over the ability of firms within the airline industry to collude, the two firms would find it more favourable to do so.
13.
 - i.

ii.



iii. In the long run because of the absence of barriers to entry there will be no excess profits and only normal profits will be made.

14.

- i. A supermarket can differentiate its product in various ways these include:
 - Quality – some supermarkets offer a high quality more expensive product offering while others settle for a lower price lower quality product offering.
 - Range of products offered – some supermarkets offer a small range of products at very competitive prices while others offer a wider range of products at generally higher prices. Some supermarkets offer both branded products and own brands catering for consumers with both high and low incomes.
 - Service – some supermarkets offer a high quality of service with speedy checkouts, well maintained stores and rewarding loyal customers while others tend to offer poorer service levels.
 - Location – some supermarkets specialise in giving their customers convenient access to their stores including parking facilities and placing smaller stores in prime locations close to residents. Other supermarkets do not offer car parking and are located in less prime areas.
 - Advertising – even if two supermarkets have broadly similar products through a successful advertising campaign a supermarket can differentiate the perceived quality of its product

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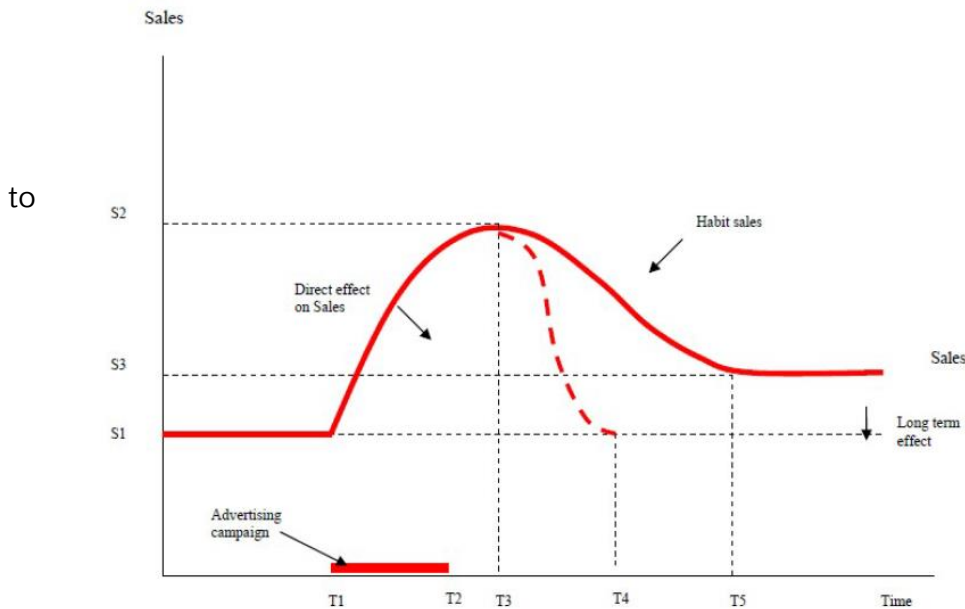
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offering. Advertising can also be used also attract consumers from a target category such as more affluent consumers, families with children and consumers of a certain age range. Pricing and special offers can be an effective means of differentiating the products, some supermarkets specialize in lower price product ranges while others have a high price but better products and customer experience.

Design and technical standards can also affect supermarkets, for example some have a higher proportion of frozen foods while others have a tendency to offer fresh food. Then there is organic versus non organic food.

- ii. Explanation of the following factors for a rise in popularity of own brand Products include:
 Cost – Branded manufacturers' low costs due to economies of scale have been matched by supermarkets because of improvements in technology and close links between suppliers and retailers.
 Quality – Supermarkets have introduced higher quality own brand products to compete with the branded manufacturers. Surveys show that consumers perceive their own brand products to be better value than branded products.
 The state of the economy – An important factor in deciding to buy own-brand products is consumers' income. In the recession following the financial crisis of 2008, sales of own brands grew as consumers become price sensitive seeking good value products.
 Advertising by supermarkets as well as the shelf space they devote to their own products has helped supermarket own brands increase their sales.
 Also competition between supermarkets since the 2008 recession has meant that they have been keen to keep overall household shopping bills down so as to maintain their market share.

iii.



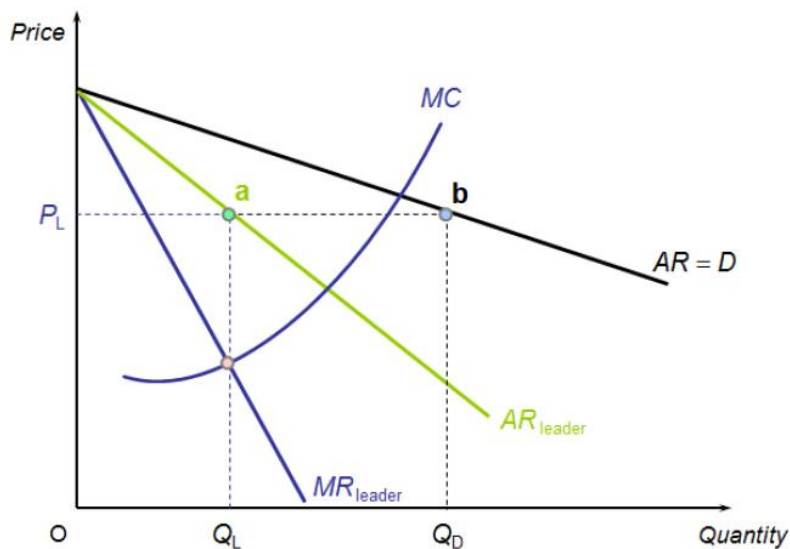
Initially an advertising campaign at time T1 is likely to push up sales of a product particularly as the campaign gets wider coverage and some consumers recommend the product for other consumers to buy. The impact on profitability of a successful campaign in the short run is likely to be positive as advertising expenditure relative to competitors will enhance

product image and company reputation leading to enhanced perceived relative quality of offering in relation to its price. The enhanced customer perception of the product will increase market share which leads to higher profit margin as well as sales growth.

Once the advertising campaign ceases there are two possibilities, one is that sales drop off quite quickly and there is no long run effect with sales returning back to roughly the original level (see dotted line). However, a more likely scenario is that some consumers that purchased the product are likely to continue to purchase the product, so called habit sales, while other new consumers might switch back to other brands. In this latter scenario, total sales will gradually decline over time but the long run sales levels will be above the original level.

Of course, the above assumes no reaction by other supermarkets to an advertising campaign. If they react to the advertising campaign, then the likely effects of the advertising campaign on sales will be somewhat diminished.

15.



In the above diagram the market demand curve is given by D, the leading firm sets its market share as given by AR(leader) with the resulting marginal revenue MR(leader). Its optimal price is found by equating its marginal cost

MC to its marginal revenue, giving price P_L and output Q_L . At price P_L total market demand is Q_D with the follower firms supplying $Q_L Q_D$.

16.

(i)

Price (£)	Quantity (Units)	Total Profit (£)	Marginal Revenue (£)
20	0	-	-
18	1	13	18
16	2	22	14
14	3	27	10
12	4	28	6
10	5	25	2
8	6	18	-2
6	7	7	-6

(ii) $-(dQ/Q)/(dP/P)$ where Q is midpoint Q and P is midpoint P

$$= -(1/5.5)/(2/9) = -0.82$$

(iii) £10–£20

17.

i. £10

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- ii. £10
 - iii. It is called a dominant strategy game since regardless of what the other player does a particular strategy earns a player a larger payoff than any other strategy. In this case for Company A its dominant strategy is to charge £10 as this results in higher profits than charging £15 regardless of what Company B does. Similarly, for Company B, its dominant strategy is to charge £10, as this results in higher profits than charging £15 regardless of what Company A does.
 - iv. Both charge £10 and the profit for each company is £8 million.
18. There are significant differences between the market structures of monopolistic competition and monopoly. With monopolistic competition there are many competing firms whereas with monopoly there is only one firm.

Under monopolistic competition each firm sells a differentiated product whereas a monopoly may sell either a single product or a range of differentiated but similar products.

A crucial difference between the two structures is that with monopolistic competition there are no barriers to entry whereas with monopoly there are barriers to entry. The absence of barriers to entry means that firms in a monopolistic competition industry will only make normal profits in the long run although supernormal profits can be made in the short run. With a monopoly, the existence of barriers to entry means that supernormal profits can be made in both the short and the long run.

Although both monopolistic competition and monopoly firms face downward sloping demand curves, the market demand curve is the demand curve for a monopolist, whereas a monopolistic competitor firm only has a small share of the market. The presence of competition will also tend to make the demand curve facing a monopolistic firm more price elastic than for a monopoly firm.

While both types of firm can be profit maximisers, competition means that a monopolistic competitor firm will have to seek to minimise its costs whereas a monopoly firm can to some extent afford to be inefficient. Monopoly firms will be better able to exploit economies of scale as their production runs will be larger than monopolistic competitor firms.