Question 3

a. Explain how the presence of negative externalities and market dominance can lead to market failure. [10]

b. Discuss what policies a government might adopt to achieve a more efficient allocation of resources where market dominance exists. [15]

Suggested Answers

a. Explain how the presence of negative externalities and market dominance can lead to market failure. [10]

Synopsis: Negative externalities & market dominance are sources of market failure and students are required to elaborate on how each of the above factors can cause market mechanism to fail. Using examples would aid in the analysis of the question.

1. Define market failure (highlighting the essential components):

a. Workings of free market leads to undesirable outcomes from a societal viewpoint leads to:
- Deadweight losses
- Total (ie. consumers' plus producers') surpluses or societal welfare is not maximized – because of quantities (restricted) or price set
- Inefficient allocation of resources

b. Hence a market does not fail when the workings of the free market leads to
- No deadweight losses
- Total (ie. consumers' plus producers') surpluses or societal welfare are maximized
- efficient allocation of resources

2. Explain how negative externalities cause market failure

a. Choose a context of a particular market activity to illustrate a negative externality in production or consumption (application) – eg. negative externality arising from production using example (Power production)

b. Define negative externality in context – the actions of producing electricity by parties directly involved (1^{st} parties) imposes an external cost (EC) on other members of society (3^{rd} parties).

c. The free market perspective
- Identify objective of the 1^{st} party - to maximize net private benefits where the revenue that they would gain from the level of power production is more than the costs incurred in using/buying resources to produce that level of power (ie. TPB – TPC = max.)
- Choosing to produce at output level where MPB=MPC, i.e. Qp. (Pte equilibrium).
- When the 1^{st} party produces electricity, they generate negative externality (eg. air pollution & greenhouse gases all of which results in global warming) that imposes external costs for other members of society (3^{rd} parties).
- This external costs (EC) comes in terms of possible harsh weather as a result of global warming and through the harsh weather results in possible poor harvest or ill health which translates into financial or monetary losses for 3^{rd} parties.

- 3rd parties here refer to the people living in the vicinity of the power station who are not directly involved in the activity of power production by the power stations.
- The EC will cause a divergence between private costs and social costs causing the marginal private cost (MSC) curve to be higher than the marginal private benefit (MPC) curve. (See Figure 1)
- It should be noted that as a result of the EC imposed, output Qp results in MSC > MPC due to MEC.

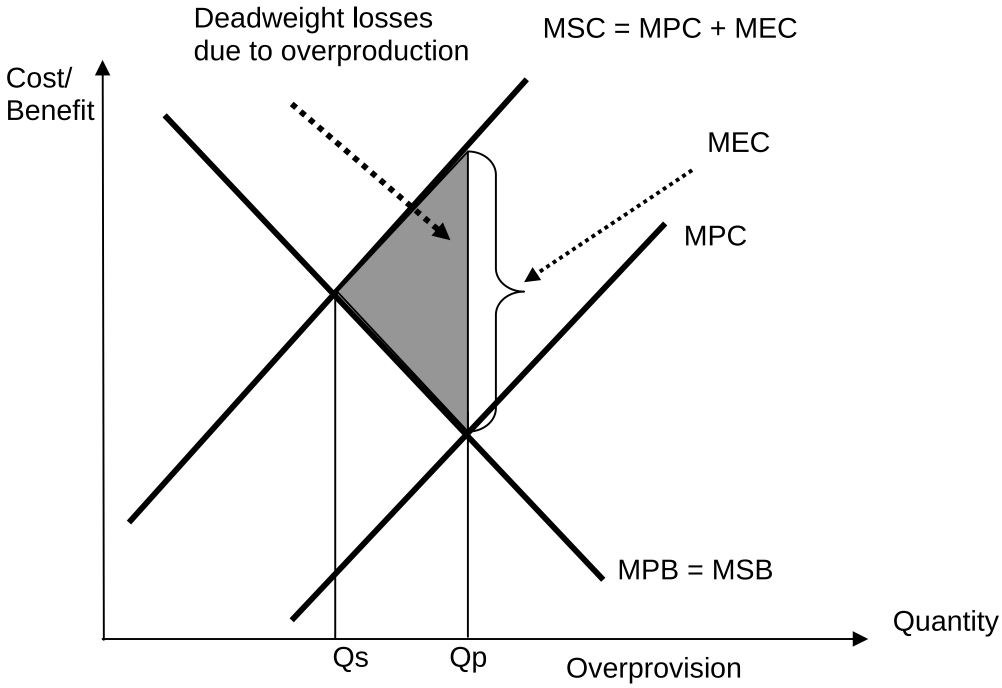


Figure 1

d. The societal perspective

- Identify the objective of the society – to maximise societal welfare or net social benefit, (where TSB – TSC = max.)
- Preferred output level is where MSB=MSC, ie. output Qs.
- At output Qp, with MSC>MSB, any production adds more to cost than benefits for the society – leading to a deadweight loss (vertical distance) for this unit of production.
- This deadweight loss cease to exist once the preferred (optimum) output level is achieved (where MSB=MSC ie. output Qs).
- So long as pte/free market output levels (Qp) is greater than optimum output levels (Qs) there is an over-production of the good and an over-allocation of resources.
- The shaded region (Figure 1) represents the deadweight loss (or monetary measure of welfare loss) to society when 1st parties are maximising their net private benefits when externalities exist at Qp resulting in over-production of goods.
- Thus, market failure results as there is an over-production of the goods that emits negative externality and resources are inefficiently allocated as such.

3. Brief explanation of market dominance

a. The only firm (monopoly) or one of the few firms (in an oligopoly) that has a high level of market control or influence due to:

- Large market share or high concentration ratio (ratio of firm's output to market output)
- Level of control or influence synonymous to the level of the barriers to entry
- Able to set price or output sold but not both (for a differentiated product)

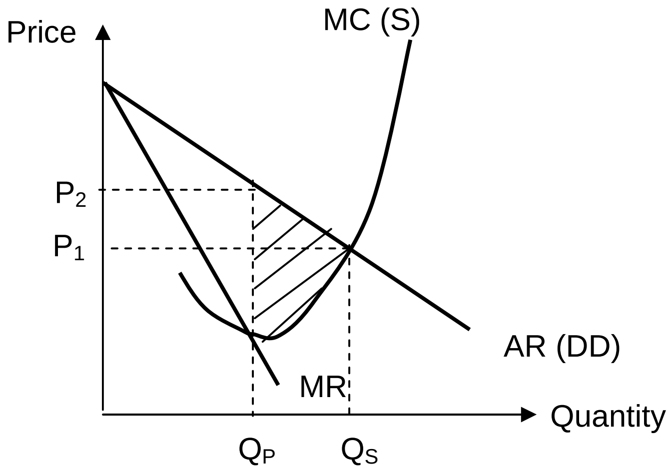
4. Explain how market dominance can lead to market failure

a. The dominant firm's perspective (ie. the monopoly or one of the oligopolistic firm)

- Identify the objective of the firm – To profit maximize (Traditional Theory)
- Choosing to restrict output at the level where the additional revenue gained for an additional unit produced (MR) equals the additional costs incurred for that additional unit produced (MC) ie. at Q_E where MR=MC (Marginalist Principle) (See Figure 2)
- Setting output where profits are maximized (MR=MC) results in an equilibrium price set above marginal cost (P>MC) at Q_E.
- Hence the valuation of (or benefits to) consumers for the additional unit of the good produced (P) is greater than the opportunity costs incurred in using resources to produce that additional unit (MC) – the vertical distance represents a degree of consumer or monopolistic exploitation.
- The high market share implies firm's demand curve (AR) is rather demand inelastic. Hence there is a fairly large degree of exploitation for every unit of output produced when there is market dominance by a firm.

b. The societal perspective

- The objective of society is to maximise societal welfare or total surpluses.
- Net social benefit or maximum total surpluses occurs at an output level where the valuation of (or benefits to) consumers for the additional unit of the good produced (P) is equal to the opportunity costs incurred in using resources to produce that additional unit (MC) (ie. Price = Marginal Cost)
- The preferred optimum output for the society is at Q_S where the price, P1 is determined by the point of intersection of the market demand curve (AR) with the supply curve or the MC in the case where there is no market dominance (ie. in a perfectly competitive market). (See Figure 2).
- At output Q_S and price P1, total societal surpluses (consumers' and producers') could be maximized – where P = MC.
- Hence so long as the output produced and sold is where P>MC, the output produced (Q_E) will be less than the socially optimum level (Q_S) – implying that the consumers' and producers' surpluses (total surpluses or societal welfare) are not maximized. There is a deadweight loss to society (Shaded area in Figure 2).
- The presence of a deadweight loss to society due to market dominance that led to an under-production (restriction) of output implies that there is market failure and an inefficient allocation of resources.
- The high market share implies firm's demand curve (AR) is rather price inelastic. Hence there is a fairly large degree of exploitation and deadweight loss to society when there is market dominance by a firm or few firms.



Monopoly at P2,Q2 and efficient point at P1,Q1.

[Figure 2]

L3	Detailed and well-developed explanation clearly illustrating how negative externality and market dominance lead to market failure. Well supported by the use of relevant examples.	7-10
L2	Limited explanation (listed ideas and not adequately developed) illustrating how negative externality and market dominance lead to market failure. Limited use of relevant examples to support explanation.	5-6
L1	Weak or limited clarity of understanding of key concepts or ability to show how negative externality and market dominance lead to market failure. Did not use or give relevant examples.	1-4

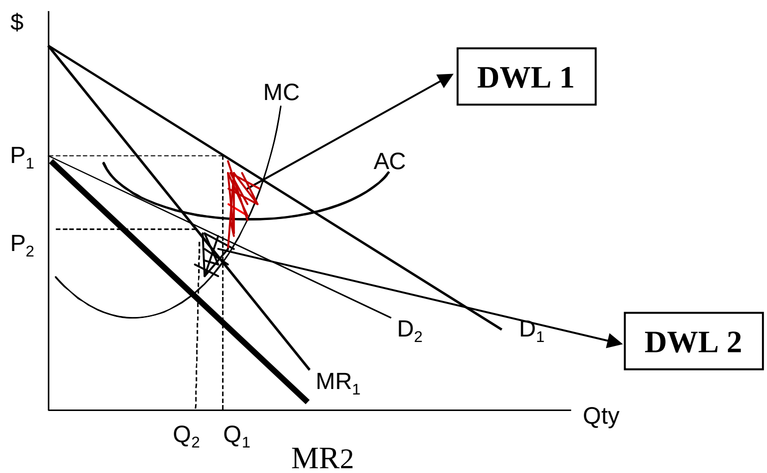
b. Discuss what policies a government might adopt to achieve a more efficient allocation of resources where market dominance exists. [15]

Synopsis: Explain policies that are relevant to solving market failure due to market dominance must be discussed. Note that question is seeking <u>more</u> efficient allocation of resources. There is a need to explore the strengths and weakness of the policies that are mentioned.

1. Introduction
- Where market dominance prevails, resources are not channeled to maximize net social benefits.
- Various policies such as nationalization, MC pricing or AC pricing and liberalization of market can be utilized to achieve a more efficient allocation of resources in the context of market dominance.

2. Explain the use of liberalisation of market to tackle the market failure

a. **How liberalisation of market address market failure**
- Issuing of more licenses to encourage more entrants
- More suppliers of the similar product will involves competition
- Demand for the dominant firm will become more price elastic
- The deadweight loss coming from the dominant firm will be reduced as compared to the past
- Refer to figure 3 for reference.
- Demand curve for dominant firm shifts from D1 to D2 and MR1 to MR2.
- Deadweight loss 2 is lesser than deadweight loss 1.
- With more suppliers, the output for the market will also increase and thus achieving a more efficient allocation of resources as output edges closer to the socially optimum point.



[Figure 3]

b. **Explain the benefits of using liberalisation**

- To survive under more competition, it would force the firms to be more efficient.
- Output might expand near or achieving the socially optimum level.
- More choices are available to the consumers if products are differentiated
- Reducing deadweight loss as price are lowered due to more competition

c. **Limitations of using liberalisation**

- High set up cost might deter new entrants
- If weak competition exists, then it will not make them to be more efficient

3. Explain the use of price regulation to tackle the market failure

a. **How price regulation address the market failure**

- Price regulation can be enforced on the firms to charge their price at marginal cost.
- The firm would need to expand output till the socially optimum level and lower price till marginal cost pricing
- Figure 1 can be used here to show the new output at Q1 and price at P1 respectively

b. **Explain the benefits of using price regulation**

- Achieve allocative efficiency (P = MC)
- Consumer is not exploited at this price and output.
- Most firms would follow the new ruling as it is a regulation set by the government.
- Removal of deadweight loss due to forcing of P=MC rule.

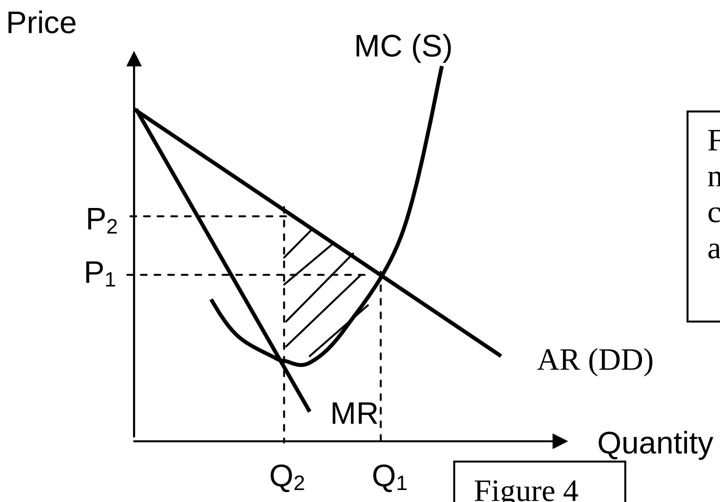
c. **Limitations of using price regulation**

- Might incur monitoring cost to ensure that firms are following the new regulation at such a low price.
- The price might be too low for the firm till they make heavy losses and till shut down
- Case whereby AC>AR, thus losses for the firm.
- Need subsidies by the government to maintain price at that low level.
- If firm is to shut down, zero production is also not allocating resources efficiently.

4. Explain the use of nationalisation to tackle the market failure

a. How nationalisation address the market failure

- Complete takeover of production by the government
- Aim is to maximize welfare and not maximize profits
- Would then produce at Q1, where P=MC, allocative efficiency point at, not using MC=MR
- Diagram of monopoly charging at P=MC can be drawn to illustrate how nationalisation achieves allocative efficiency
- Thus, resources would be allocated efficiently by taking away the market power from the existing firm



From figure 4, nationalisation allows charging of P=MC to be achieved at P1 and Q1.

Figure 4

b. **Explain the benefits of nationalisation**

- No deadweight loss on the society since output is at efficient point
- Resource would be efficiently allocated by the proper planning by the relevant authority
- Provides greater certainty in affecting a more efficient resource allocation when other policies (e.g. liberalisation and price regulation do not work effectively.

c. **Limitations of nationalisation**

- Funding issue might be a problem for a complete takeover by some poor government
- Inefficiency might happen due to much bureaucratic and slow in decision making
- Might stifle private investment which is necessary for long term economic growth

[Other viable policies includes AC pricing, lump-sum or specific tax]

5. Conclusion

   Government policies are available to solve market dominance. However, there are some policies which are better based on the nature of the economy.

L3	For a detailed and well-elaborated analysis of policies that could be adopted to achieve a more efficient resource allocation caused by market dominance. Competent use of relevant economic underpinnings and examples in analysing the policy mechanism, effectiveness and limitations.	9-11
L2	For a limited or inadequate analysis (descriptive knowledge) of policies or one policy that could be adopted to achieve a more efficient resource allocation caused by market dominance. Adequate use of relevant economic underpinnings and examples in analysing the policy mechanism, effectiveness and limitations.	6-8
L1	For a brief analysis or listing of a number of policies (mere listing of the types of government intervention) or only one policy that could be adopted to achieve a more efficient resource allocation caused by market dominance. Superficial or limited use of relevant economic underpinnings and examples in analysing the policy mechanism, effectiveness and limitations that contains errors or irrelevancies.	1-5

E2	For an evaluative judgment based on analysis and supported with a strong conclusion. For example, looking beyond the surface of the question, look deeper into degree of market dominance, either monopolistic competition, oligopoly or monopoly. Thus, effectiveness of policies depends on the structures of the market. Can also look into the reaction of firms in response to the various policies implemented.	3-4
E1	For an unexplained judgement, or one that is not supported by analysis For example, comparing of policies explained to see which one can achieve a more efficient allocation of resources either due to having most positive effects or the one with the least problems.	1-2