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Practice Set 6

Market Failure & Government Intervention

This set contains practice material for your own use. It is highly recommended to work on the problems on your own. Do not just read the provided solutions. Instead, try to solve the problems and use the solutions only when you are stuck. Reading problems that someone else has solved has the same value on your preparation like watching someone running a marathon on TV and then expecting to be able to run it, too! If you have questions on this set, please ask your section's teaching assistant.

1. Consider the monopoly illustrated in *Figure 1*. A regulator considers 4 alternative price ceilings: p_1, p_2, p_3 and p_4.
   (a) What would be the effect if price ceiling p_1 is imposed?
   (b) Which price ceiling should the regulator impose in order to force the monopolist to produce at minimum average cost?
   (c) Which price ceiling should the regulator impose in order to maximize the efficiency in this market?
   (d) Can the regulator impose a price ceiling that will force the monopolist to produce the quantity that corresponds to point F of the figure?
   (e) Is the monopoly in figure 1 a natural monopoly?

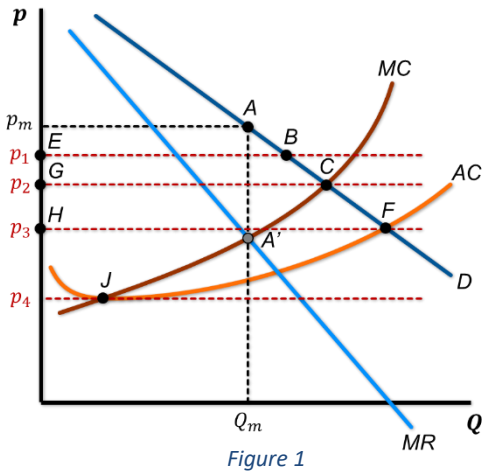

Figure 1

2. Consider the monopoly illustrated in *figure 2*. A regulator considers 2 alternative price ceilings: p_1 and p_2.
   (a) Explain why this is a natural monopoly.
   (b) Which price ceiling should be imposed to maximize efficiency in this market?
   (c) Which price ceiling should the regulator impose in order to maximize production, while the monopoly can still be sustainable on its own?

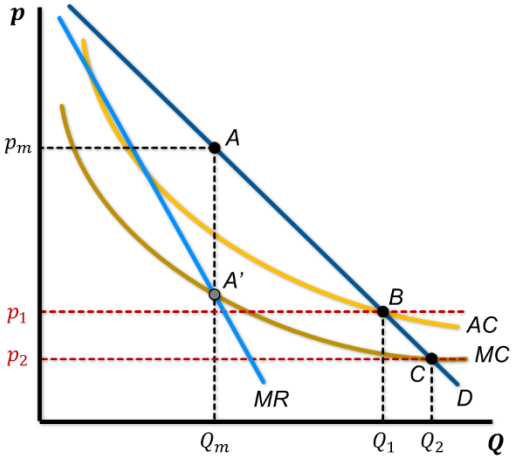

Figure 2

3. Production of electricity in a town requires total cost $TC = 600 + 10Q$ and marginal cost $MC = 10$. The town's demand for electricity is $p = 90 - 2Q$.
   (a) Derive the price, output and profit if the market of electricity is a *monopoly*.
   (b) Derive the price, output and profit if the market of electricity is a *collusive duopoly*.
   (c) Derive the price, output and profits if the market of electricity is a *Cournot duopoly*.
   (d) What kind of industry is this?
   (e) Derive the price, output and profits if the market of electricity is *regulated* so that $p = MC$.
   (f) Derive the price, output and profits if the market of electricity is *regulated* so that $p = 30$. What kind of regulation is this?

4. Explain whether any of the following statements implies a '*positive externality failure'*.
   (a) "*I do not read as much as I should because I watch too much YouTube*".
   (b) "*I do not recycle because the recycle bins are far from my home*".
   (c) "*I do not use my car when it rains because there is more traffic*".
   (d) "*The only reason I donate blood is because I want to get the likes from uploading the relevant photo on Instagram*".
   (e) "*The mayor installed a toll station on the nearby highway and now the neighborhood suffers a traffic congestion problem because cars cut through the neighborhood streets to avoid the tolls*".
5. MeatMe barbeque restaurant opened next to the Vegan café. The barbeque smell from MeatMe has caused Vegan café to lose business valued at $200K, because it turns off lots of its patrons who used to sit at the patio. MeatMe could install a ventilation system that prevents the barbeque smell from reaching the neighborhood helping the Vegan café to avoid the loss of business. However, MeatMe sees no own benefit from installing the ventilation system and will not install it on its own.
   (a) How can the externality be resolved if the cost of the ventilation system exceeds $200K?
   (b) How can the externality be resolved if the cost of the ventilation system is less than $200K?