1. Answer the following questions, using the figure below:

(i) The figure above represents the demand and cost functions facing a Brazilian Steel producing monopolist. If it were unable to export, and was constrained by its domestic market, what quantity would it sell at what price?
(ii) Now the monopolist discovers that it can export as much as it likes of its steel at the world price of $5/ton. How much steel will the monopolist sell, and at what price?
(iii) Given the opportunity to sell at world prices, what is the marginal (opportunity) cost of selling a ton domestically?
(iv) How much steel would the firm sell domestically, and at what price?
(v) Is the Brazilian firm engaged in dumping? Is this predatory behavior on the part of the Brazilian steel company? Is this pricing strategy good or bad for the U.S.? [1.5x4 + 2 = 8]

Answer:
(i) It would sell 5 (million tons) at a price of $8/ton.
(ii) It would sell 10 million tons at $5/ton.
(iii) $5/ton.
(iv) 4 million tons at $10/ton.
(v) Yes, if one defines dumping as selling abroad at a price lower than domestically. No, if dumping means selling below marginal cost. This is not being done in order to capture market shares, but rather is “mere” static profit maximization behavior, as is expected of any monopolist engaging in price discrimination.

2. In perfect competition, firms set price equal to marginal cost. Why isn’t this possible when there are internal economies of scale?
**Answer:** The profit maximizing output level of a monopolist occurs where $MR=MC$. Unlike the case of perfectly competitive markets, under monopoly $MR \neq P$. In imperfectly competitive markets, $MR < P$, because to sell an extra unit of output, the firm must lower the price of all units, not just the marginal one.

3. There are some shops in Japan that sell Japanese goods imported back from the US at a discount over the prices charged by other Japanese shops. How is this possible? [3]

**Answer:** The Japanese producers are price-discriminating across United States and Japanese markets, so that the goods sold in the US are much cheaper than those sold in Japan. It may be profitable for other Japanese to purchase these goods in the US, incur any tariffs and/or transportation costs, and resell the goods in Japan. Clearly, the price differential across markets must be non-trivial for this to be profitable.

4. For each of the events below, which of the following do you think is the relatively more important cause: internal economies of scale or comparative advantage?
   (a) Much of the world's best wine comes from France.
   (b) Half of the world's large jet aircrafts are assembled in Seattle, Washington.
   (c) Most Scotch whiskey comes from Scotland. [1x3=3]

**Answer:**
(a) France has a particular blend of climatic conditions and land that is difficult to reproduce elsewhere. This generates a *comparative advantage* in wine production.
(b) Since economies of scale are significant in aircraft production, it tends to be done by a small number of (imperfectly competitive) firms at a limited number of locations, like Seattle, where Boeing produces, and Toulouse in France, where Airbus produces. This example therefore reflects the existence of *internal economies of scale*.
(c) The production of scotch whiskey requires a technique known to skilled distillers who are concentrated in the region. Also, soil and climatic conditions are favorable for grains used in local scotch production. This reflects *comparative advantage*.

5. It is fairly common for an industrial cluster to break up and to move to locations with lower wages when the technology of the industry is no longer rapidly improving—when it is no longer necessary to have the most modern machinery, when the need for highly skilled workers has declined, and when being at the cutting edge of innovation conveys only a small advantage. Explain this tendency of industrial clusters to break up in terms of the theory of external economies. [3]

**Answer:** External economies are important for firms as technology changes rapidly and as the “cutting edge” moves quickly with frequent innovations. As this process slows, manufacturing becomes more routine and there is less advantage conferred by external economies. Instead, firms look for low cost production locations. Since external economies are no longer important, firms find little advantage in being clustered and it is likely that locations other than the high-wage original locations are chosen.