Question 1

The first thing to realize was that the Clayton Act had not been passed by the time the firms merged. Since their market share after the merger wasn’t excessive, the Sherman Act (short of monopolization) could not be used to prevent it. So while collusion was illegal, merging was not at that time. Why did they want to merge? In short, because they could increase the price and profit without being illegal. Also, cheating is not an issue within a single company, so they could avoid this problem by merging.

Question 2

First you had to write down the definition from the DOJ Merger Guidelines (I won’t do it here, see small print on p.212, Chapter 7). Then the argument is the following. While usually distance is a key determinant in deciding what constitutes a market, in this case other considerations are more important. Suppose prices are 5% higher in the wealthy neighborhood. Do you expect residents to shop in the slum? If not, than the relevant antitrust market is the wealthy neighborhood alone. The point is, in other words, that the clientele of the two stores is so different that even if they are close to each other, they should be considered separate markets. Owning the slum store does not increase the market power of the up-scale shop. Note that we only care about the change in monopoly power before and after the merger; and given the argument above, we don’t expect this change to be significant.
Question 3

(a)
The average incremental costs of a product decrease with output.

(b)
It is less costly to produce two different products within a single firm than to produce them in two separate firms.

(c)
A service passes this test if the revenues it produces are at least as large as the added costs of producing the service. That is, for a service x, \( p_x X \geq C(X, Y) - C(0, Y) \). If so, the service is not receiving a subsidy.

(d)
A service passes this test if the revenues it produces are no larger than the cost of providing the service on its own. That is, \( p_x X \leq C(X, 0) \). If so, the service is not providing a subsidy.

(e)
An industry is a natural monopoly if it is less costly to produce total output in one firm rather than in two or more firms.

Question 4

(a)
To get day demand, add up the two demand curves (factory and park):

\[
Q_d = Q_f + Q_p = 120 - p + 100 - p = 220 - 2p \quad (1)
\]

Night demand, of course, is just \( Q_n = 100 - p \). Now, check for firm peak. Plug \( p_d = b + \beta = 60 \) and \( p_n = b \) into day and night demands. You get
100 = Q_d > Q_n = 90, so firm peak. Then capacity is K = 100, park demands \( Q_p = 120 - 60 = 60 \) and factory demands \( Q_f^d = 100 - 60 = 40 \) at daytime, \( Q_f^n = 100 - 10 = 90 \) at night.

(b)
Use SAC test. Park pays 3600 = 60 \cdot 60. and its stand-alone cost is \( Q_p \cdot (b + \beta) = 60 \cdot 60 = 3600 \). So the park is not providing a subsidy, therefore no cross-subsidization occurs.

(c)
The easiest way is to notice that day and night demands are the same for the factory \( (Q = 100 - p) \), so for the same price it will consume the same quantities. That is, \( Q_f^d = Q_f^n = 100 - 35 = 65 \). We get the price for the park from the condition that profit is zero for the electric utility. Let us call this price \( p_p \). Than total revenues for the utility are \( TR = 35 \cdot 65 + 35 \cdot 65 + p_p \cdot (120 - p_p) \). Note that since night demand is only by factory and it wants the same amount in each periods, capacity is determined by day demand (which is 65 + 120 − \( p_p \)). Then total costs are given by the following expression: \( TC = 10 \cdot 65 + 10 \cdot 65 + 10 \cdot (120 - p_p) + 50 \cdot (65 + 120 - p_p) \). Equate total cost and total revenue, rearrange and get that \( p_p = 60 \).

(d)
Since park pays the same price and uses the same quantity as in part (a), SAC again shows that it does not provide a subsidy. Conclusion: same as in (a), no cross-subsidization.

(e)
Note that park and utility are in the same situation in both cases, so we only have to check factory. Total surplus before was \((100 - 60) \cdot 40/2 = 800\) for the day and \((100 - 10) \cdot 90/2 = 4050\) for the night. With uniform prices, total surplus is \(2 \cdot (100 - 35) \cdot 65/2 = 4225\). The total deadweight loss is the difference in the surpluses, or \( DWL = 800 + 4050 - 4225 = 625\).