Answers

1.a. "Left" is a dominant strategy for Player B.
b. "Bottom," since player A should anticipate that B will play its dominant strategy.
c. ($500, -$50)
d. See the extensive form game is shown in Figure 13-1. Notice that if player B moves first, its best response is "Right." To see this, notice that if B plays "Left," A will play "Bottom" since $500 is better than $100. If B plays "Right," A's best response is "Top" since -$10 is better than -$100. Thus, player B earns a payoff of $100 by moving first and playing "Right," compared to the payoff of -$50 that is achieved if it does not exercise this first-mover advantage.

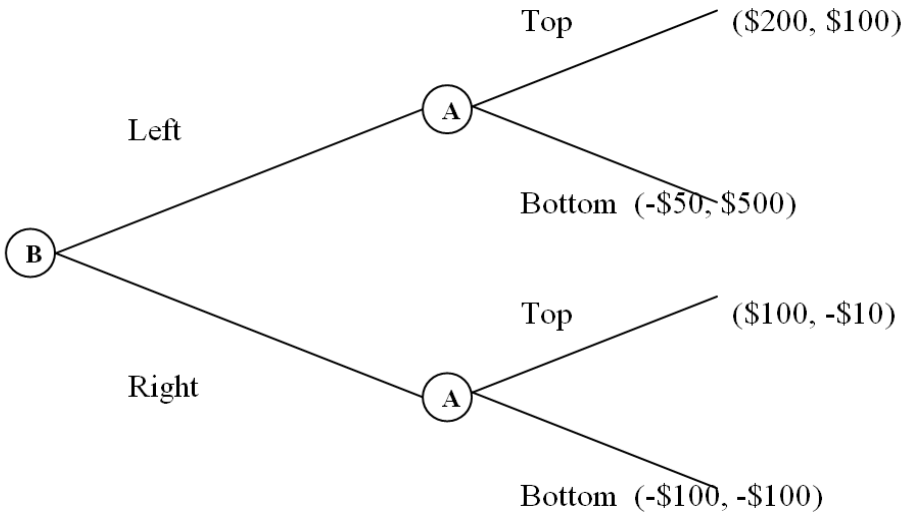

Figure 13-1

e. Player B must be able to credibly commit to the strategy "Right" before player A has a chance to move. Furthermore, this choice must be known by A before it makes its own move.

2. a. Predatory pricing.

b. If Sanford does not engage in predatory pricing, the present value of its earnings (including current earnings of $10 million) is

$$\Pi^N = \$10 + \left(\frac{1}{1+.05}\right)(\$10) + \left(\frac{1}{1+.05}\right)^2(\$10) + \left(\frac{1}{1+.05}\right)^3(\$10) + \ldots$$

$$= \left(\frac{1+.05}{.05}\right)(\$10)$$
$$= (21)(\$10)$$
$$= \$210 \text{ million.}$$

If Sanford uses predatory pricing, the present value of its current and future profits is

$$\Pi^P = -\$20 + \left(\frac{1}{1+.05}\right)(\$35) + \left(\frac{1}{1+.05}\right)^2(\$35) + \left(\frac{1}{1+.05}\right)^3(\$35) + \ldots$$
$$= -\$20 + \frac{(\$35)}{.05}$$
$$= -\$20 + \$700$$
$$= \$680 \text{ million.}$$

In this case, Sanford earns more by predatory pricing.

Answers

3. a. The existing network provides 50(49) = 2,450 potential connection services. Since each consumer values connection services at an average of $75,000 per connection, the total value to each consumer of the existing network is $183,750,000. Thus, the maximum amount a user would pay to use the existing network is $183,750,000.
b. Notice that the maximum amount each users will pay for access to the new network is $245,000,000 (since 2,450 x $100,000 = $245,000,000). However, a user will only pay this amount if all 50 users subscribe to the new network! To get all users to switch, the owner of the new network should consider a penetration pricing strategy. Examples include initially giving services away for free or even paying a small amount to induce users to switch to the new network. Once all users switch, the price can be increased to $245,000,000 per user.

4. Player B has a first-mover advantage. The strategy leading to an advantage is {(high output), (if low output, high output), (if high output, low output).

5. Before merging, the two firms have a total contribution to the industry HHI of $10{,}000\ [(0.2)^2 + (0.1)^2)] = 500$.
After merging, the firms have a contribution of
$(0.3)^2 \times 10{,}000 = 900$
to the HHI. That is, the merger will lead to an increase in HHI from 1,000 to 1,400. Since the new merger guidelines written by the FTC stipulate that if the HHI is between 1,000 and 1,800, the merger is to be carefully examined. Therefore, you should be concerned about antitrust proceedings. However, if you can show that the merger will decrease your costs, the merger may be allowed.

6a. Limit pricing. It is not predatory pricing since there is currently no firm in the market and the proposed price is above its marginal cost.
b. Assuming the firm can credibly commit to maintain the price of $50, limit pricing is profitable if $\frac{(\pi^L - \pi^D)}{i} > \pi^M - \pi^L$ or in this case, $\frac{(\$50 - \$40)}{i} > \$70 - \$50$.
Simplifying, we see that limit pricing is profitable if $\frac{\$10}{i} > \$20$. Solving for i, it follows that limit pricing is profitable if $i < 0.5$. That is, so long as the interest rate is less than 50 percent, limit pricing is a profitable strategy.

Answers

7. a. Acme's profits are ($.05 - $.01)100,000 = $4,000 per week.
b. Economic profits will be positive. As a result of the ceiling, Acme will expand output to the point where demand is satisfied at the ceiling price of $.01. Since average costs are declining (since all costs are fixed), average total cost at this higher level of output is less than $.01 per gallon, so the firm makes positive profits.
c. No shortage results.