#1: Monopolistic Competition

MC-1. d. All of the terms describe economically breaking even

MC-2. c. Economic profits will attract competition

MC-3. d. Economically breaking even means you just cover the opportunity cost of production, that is, the next best alternative.

MC-4. e. Employee costs are costs in an accounting sense and economic sense.

MC-5. c. The total of employees, rent, materials and interest.

MC-6. c. TR – Explicit costs which is 210K-151K

MC-7. b. 80K in opportunity cost of the owner’s time. And 3K in the opportunity cost of the 50K investment.

MC-8. c. The explicit costs (accounting) are 151K. The implicit costs are 83K. So opportunity cost is 234K.

MC-9. d. Economic profit is 210K-234K

MC-10. c. Since there is an economic loss, this firm will want to exit the industry in the long run.

MC-11. c. The firm maximizes profit where MR=MC. MR is the lower downward sloping line. MC is the upward sloping line. Those meet at a quantity of 100.

MC-12. c. At a quantity of 100, the firm would set a price of $8. This found by starting at 100 on the lower axis and moving up to the demand curve (upper downward sloping line) and over to price.

MC-13. c. The ATC at quantity 100 is $2. So TC = $2 *100 = 200

MC-14. d. TR = P * Q. Given P & Q above, TR = $8 * 100 or $800

MC-15. c. Profit = TR – TC. Given those above, profit = $800 - $200 = $600

MC-16. d. As new firms enter (because this firm is making a profit) and produce close substitutes, this firm’s demand curve will decrease (shift left) and people will be more price sensitive. The demand curve will be flatter or more elastic.

MC-17. a. With the firm making profits. New firms enter. And since the demand for this firm’s goods will decrease, this firm will produce less.

MC-18. a. Monop Comp firms have downward sloping demand curves because they differentiate their product. Thus, they have some control over their price.

MC-19. d. Monopolies have barriers to entry and thus don’t face competition in the long run

MC-20. c. Monop Comp firms try to compete by making themselves different, not by lowering their price.

MC-21. b. Monop Comp. firms produce different or heterogeneous goods, not homogeneous.

MC-22. c. Monop Comp produces differentiated goods

MC-23. c. Demand shifts left (decreases) and flattens (more elastic).

MC-24. d. Competition will eliminate profit in the long run for a Monop Comp firm, but Monopolies are protected from competition with barriers
MC-25. a. Monop Comp firms have downward sloping demand curves. Perfectly Comp. firms have flat, horizontal or perfectly elastic demand curves.
#2: Perfect Competition

PC-1. c. Although each firm is a price taker and faces a horizontal (perfectly elastic) demand curve. The demand curve for the industry as a whole slopes downward like any normal demand curve.

PC-2. b. The firm is a price taker. Graphically this is shown as a horizontal (perfectly elastic) demand curve.

PC-3. c. Because the firm is so small compared to the market as a whole, the firm cannot affect or control the market price.

PC-4. d. If a firm cuts production, the change in the market is so small it will have no impact on market price.

PC-5. a. In perfect competition, all firms produce identical or homogenous products.

PC-6. c. If a firm charges above the market price, no one will buy from that firm. And the firm will sell nothing.

PC-7. b. The change in revenue for selling one more good for a price taking firm is the price the firm will receive.

PC-8. c. MR = MC is the profit maximizing rule. However, for a price taking firm since MR = P, the profit maximizing rule becomes P = MC.

PC-9. a. A firm produces where P=MC unless P is below the shut down point. So the supply curve is MC above the shutdown point (AVC).

PC-10. c. The industry supply is curve is the sum of all the firms’ supply curves.

PC-11. c. When firms enter an industry, the industry supply curve increases or shifts right.

PC-12. b. Where $9 equals MC is at a quantity of 80.

PC-13. d. Where $18 equals MC is at a quantity of 100.

PC-14. c. Where $14 equals MC is a quantity of 90.

PC-15. c. At a price of $18, the firm will produce 100 goods. Total revenue is $1800 (P*Q) and total cost is $1450 (ATC * Q). So the difference is $350.

PC-16. a. At a price of $9, the firm will produce 80 goods. Total revenue is $720 and total cost is $1160. The difference is $440.

PC-17. d. At a quantity of 80 goods, ATC is $14.50. So TC is ATC * Q or $1160.

PC-18. e. Since price is below AVC, the firm should shut down.

PC-19. d. Each firm produces 80 goods. If there are 150 firms producing 80 goods each, total industry production is 80*150 = 12,000.

PC-20. c. The quantity produced by the firm at $6 is 25. If there are 5,000 firms, then industry production is 5K * 25 = 125K. The supply curve that is 125K at $6 is S^3.

PC-21. b. The industry produces 75K at $6. If each firm produces 25 at $6, then there must be 3,000 firms. You could also find the answer using $4. Each firm’s quantity supply is 15 at $4. The industry’s quantity supplied is 45,000. 45,000 divided by 15 is 3,000 firms.

PC-22. e. The trick to this question is the question asks about accounting, not economic, profit. If there’s an accounting profit, we don’t know whether there’s an economic profit, an economic loss, or break even. So we don’t
know whether firms will enter or exit or stay the same. If the question was about economic profit, then firms would enter and the industry supply curve would shift to the right, from $S^3$ to $S^4$ or $S^5$.

PC-23. b. If there are economic losses, firms will exit and the industry supply curve will decrease or move to the left. From $S^3$ (5,000 firms), that would be $S^2$.

PC-24. a. With $S^4$, there must be 6,000 firms. If there are 6,000 firms and each firm produces 15 goods at $4, the industry’s quantity supplied would be 90,000.

PC-25. d. The firm’s supply curve is MC above the shut-down point (or AVC). Below the shut-down point, the firm shuts down, so quantity supplied becomes 0.

PC-26. c. New firms cannot enter in the short run

PC-27. e. Firm production, in the long run, will return to the breakeven point.

PC-28. d. As demand falls, price will fall. With the decrease in price, each firm will produce less and there’s a decrease in quantity supplied in the industry.

PC-29. c. In the short run, price falls, and firms experience losses. This will cause firms to exit in the long run, not enter

PC-30. d. In a constant-cost industry, the long run supply curve is a horizontal line (perfectly elastic) at the break-even point (bottom of LRAC)

PC-31. c. (see previous question)

PC-32. a. In a constant-cost industry, the long run supply curve is horizontal. But in an increasing-cost industry, as new firms enter (you move to the right along the long run supply curve), costs rise in the industry which raises the break-even point. That makes the long run supply curve slope upward. The opposite happens with a decreasing-cost industry. As firms enter, cost of production and the break-even point falls so that the long run supply curve slopes down

PC-33. a. Because the long run supply curve slopes up, in an increasing-cost industry, an increase in demand moves upward along the supply curve (to the right), so price rises. The reverse happens in a decreasing-cost industry. An increase in demand moves downward (to the right), so price falls.

PC-34. d. The way a perfectly competitive industry adjusts along the long run supply curve is by adding more firms (to move to the right) or reducing firms (to move to the left).

PC-35. b. If cost of production rises, as new firms enter the industry, that describes an increasing cost industry.

PC-36. a. The most inelastic

PC-37. c. Is perfectly elastic, or horizontal

PC-38. b. The long run supply curve slopes up slightly because costs rise as new firms enter

PC-39. d. The long run supply curve slopes down slightly because costs fall as new firms enter
PCI-1) e. Only in perfect competition do we show both the industry and a single, representative firm that takes the price from the industry as given.

PCI-2) b. If we’re doing long run analysis, this should be the LRAC curve. It could also be an ATC.

PCI-3) a. This is a marginal cost curve (above the shut-down point) which also is a firm’s supply curve

PCI-4) d. This is the market demand curve. This side of the graph is a standard supply and demand graph.

PCI-5) c. This is the industry’s supply curve which is the sum total of all the firms’ supply curves. This supply curve assumes the short run. It can shift in the long run if firms enter or exit.

PCI-6) c. The break-even point which is the long run equilibrium is at the bottom of the LRAC, curve A. This sets the long run price at P₃.

PCI-7) e. Since current price (as set by supply and demand in the industry graph) is above the long run break-even price, P₃, firms must be making a profit. If firms are making a profit, more will enter in the long run.

PCI-8) d. The market demand curve is C. The market supply curve is E, so the current equilibrium price is where these two curves meet.

PCI-9) c. The current price is P², and that hits the firm’s supply curve, curve B, at Q². In the long run, price will be at P³, the firms will be at the break-even point producing Q¹.

PCI-10) b. As already mentioned above, price in the long run should go from the current P² to P³ in the long run. That’s a lower price.

PCI-11) e. The break-even point sets the long run price at P³. At P³, the quantity demanded, using the market demand curve C, will buy a quantity of Q⁶.

PCI-12) a. As already mentioned above, the current market price is above the break-even point so firms are making an economic profit. This will attract more firms to enter the industry.

PCI-13) a. The new break-even point using the new technology has firms producing larger quantities are. This new curve has great increasing returns to scale, rewarding firms with lower costs when producing larger quantities.

PCI-14) b. With greater increasing returns to scale, firms will get larger. With the lower cost, competition will push firms to lower the price. There will be larger firms selling goods at a lower price. This is very much the story of Henry Ford (though, that wasn’t a perfectly competitive industry). Ford’s technology led to larger automobile firms selling cars at (much) lower prices.

PCI-15) c. Supply and demand is currently at Q⁵. However, with the new break-even point, quantity demand, and the ultimately the new long run equilibrium, will move to Q⁶.

PCI-16) c. This is the same answer at the previous question for the same reason. The only difference in this new case is the new technology benefits smaller firms, not larger firms.

PCI-17) e. This is firm quantity, so we’re using the graph on the left. The old technology had the break-even point at Q². The new technology moves it to a smaller quantity of Q¹.

PCI-18) a. The old technology had a break-even point at a price of P¹. The new technology lowers the price to P².
PCI-19) c. In Figure 2, the new technology forced firms become larger to lower their costs. With Figure 3, it is the opposite. Firms will need to get smaller to reach the break-even point. Because price will fall, there will be a great quantity demanded, so there will need to be a lot more firms to meet the increased quantity demanded.

PCI-20) e. The new LRAC has the break-even point at a smaller quantity, meaning this favors smaller firms and reflects less economies of scale than the previous curve. Since the LRAC is lower, costs are lower. If price falls, more goods are needed. If the firms are now smaller, then there will need to be more of them in the industry.

PCI-21) d. If the industry is in long run equilibrium, then price must be at the break-even point which is $P^2$. The demand curve meets that price at $Q^4$. The (short run) industry supply curve that goes through that price and quantity is curve D.

PCI-22) d. See previous question.
Game Theory

GT-1. c. Game theory looks at rational, intelligent decision makers interacting in ways that offer results of conflict and/or cooperation.

GT-2. c. When players act at the same time, that’s called a simultaneous game. When players take turn going back and forth, like with chess, that’s called a sequential game.

GT-3. a. In Rock, Paper, Scissors (RPS), both players act at the same time (though some players try to cheat this). In Tic-Tac-Toe, Chess, and Monopoly, players take turns which makes those a sequential game.

GT-4. e. A pure strategy is when you always do the same thing, for example, “I always choose rock”. The Nash Equilibrium for RPS is to randomly choose rock, paper, scissors with an equally probability of each (each has a 1 out of 3 chance). Because you change your pick from round to round, this is a “mixed” strategy. So there is no pure strategy. In RPS, you don’t want to do the same thing every time.

GT-5. d. A “mixed strategy” is one where you alternate your pick from round to round. For example, in RPS sometimes you pick rock, sometimes paper, sometimes scissors. You keep mixing your strategy.

GT-6. e. All are ways that increase complexity.

GT-7. c. Where the winnings of one player equal the losses of all the other players is called a “zero-sum game”. In zero-sum games, what one person wins, someone else has to lose.

GT-8. b. Non-zero sum games mean there may be net benefits for players to cooperate, and this is probably more common for most situations found in the economy. In non-zero sum games, there are win-win outcomes available, whereas in zero-sum games, the outcomes are always win-lose.

GT-9. a. In zero-sum games, what one person wins, the other loses. This means the game is always one of conflict. There is no benefit of cooperation. There is no “win-win” because every result is defined as “win-lose”.

GT-10. c. With a sequential game, layout all the possible outcomes looking forward. Then, looking at the final outcomes, decide which you want, and start reasoning backwards on how to get there.

GT-11. b. The number of possible outcomes for a game of chess is so large no computer has yet been able to figure out the best strategy. To make things complicated, the best strategy is completely contingent upon what the other player does so the number of contingencies in the optimal strategy is enormous. By the way, it might be easy to write the number of how many different outcomes there is. For example, let’s pretend it’s a googol. There are a googol different outcomes in chess (pretending). That’s easily written as $10^{100}$. However, if you had to write down each of those googol of outcomes, even if you wrote each outcome on but a single molecule, there wouldn’t be enough molecules in the entire universe to write them all down.

GT-12. a. If Prisoner 1 doesn’t confess, then Prisoner 2 can go free by confessing and testifying against Prisoner 1. This is what Prisoner 1 fears, and why Prisoner 1 may not remain silent.

GT-13. b. If one prisoner confesses, the other will want to confess to avoid the most severe punishment. This is the Nash Equilibrium; both prisoners confess.

GT-14. c. Let’s say Prisoner 1 does remains silent and does not confess. Then Prisoner 2 can get off completely by confessing and testifying against Prisoner 1. On the other hand, if Prisoner 1 confesses, Prisoner 2 will confess to avoid a very severe punishment because Prisoner 1 is testifying against him. This means, Prisoner 2 is always better off by confessing. That’s why it’s the dominant strategy.

GT-15. d. With multiple rounds, players can build a reputation for cooperation and develop trust. Also, a defecting player can be punished with retaliation.
GT-16.  b. Tit for tat was the first optimal strategy discovered for multiple rounds. However, there was one problem. It created ongoing echos of retaliation, each player going back and forth with defection and cooperation. A little bit of extra forgiveness solves this problem and gets everyone back on cooperation.

GT-17.  d. If A hunts the stag and B hunts the hare, then A doesn’t catch the stag and gets nothing. But B will get a hare which is just a little.

GT-18.  b. In the Stag Hunt Game, the stag can only be successfully caught if both players work together. However, and hare can be caught by a person acting alone.

GT-19.  e. If B chooses hunt the stag, then A should hunt the stag. If B chooses hunt hare, then A should hunt the hare. So there is no single strategy for A that’s always best unconditional on what B does. This same reasoning holds for B.

GT-20.  c. Both players hunting the stag and both players hunting the hare are Nash equilibriums. Both players would choose to hunt the stag (or hare) based on a correct prediction that the other player will hunt the stag (or hare).

GT-21.  a. The efficient outcome is the one that creates the greatest amount for both players. Both players make the maximum if they both hunt the stag.

GT-22.  c. If both player cooperate with each other, they’ll both agree to hunt the stag. Once both have chosen that, either would do worse to move away from that agreement. If both agree to hunt the stag, they’d get 3. If one, say Hunter A, starts to hunt the hare, Hunter A’s win would drop to 1. So both players wouldn’t want to cheat on their cooperation.

GT-23.  b. If a player always hunts the hare, they will always receive “1” (see table 3). There is no risk in this. They receive the “1” no matter what the other player does. There is no risk of getting 0.

GT-24.  a. The high payoff strategy is to hunt the stag. Knowing that the other player will choose this, it makes sense for a player to also choose this and everyone gets a 3 instead of a 1 for hunting the hare.

GT-25.  e. If your opponent swerves, you shouldn’t. If you opponent doesn’t swerve, you should. There is no one-best strategy for you.

GT-26.  c. If you think your opponent will swerve so you don’t, then your opponent will in fact swerve, so that’s a Nash Equilibrium. Alternatively, if you think your opponent won’t swerve, so you do, then your opponent won’t swerve as predicted. That’s a Nash equilibrium.

GT-27.  c. With the Prisoners’ Dilemma, the prisoners can both benefit from cooperating or colluding. However, in the game of chicken, there is only one winner. Cooperation can produce an outcome that benefits both players.

GT-28.  a. By pre-committing, you force the other player to swerve which gives you the win. You force the other player’s decision. It’s an example where going first is beneficial.

GT-29.  e. If your partner chooses to go bicycling, you should bicycle. If you partner chooses tennis, you should choose tennis. There is no one always-best decision.

GT-30.  c. If you think your partner will chose to play tennis, you should choose tennis. You having chosen tennis, your partner will also elect tennis, so that’s a Nash equilibrium. Exact same thinking applies to bicycling.

GT-31.  a. In the battle of sexes, the key is for both players to do the same thing. Once they’ve chosen that, there’s no incentive to defect. Either player is worse off is they were to go off on their own and chose a different option, say go bicycling instead of staying with the agreed upon tennis.

GT-32.  b. For pre-commitment to be effect, it has to be very difficult to get out of the decision. That way the other player knows you’ll stick with your choice.
GT-33. a. A commitment, promise, or threat to be believed by your opponent, the statement must be “credible”.

GT-34. e. Those are four ways to make a commitment (or promise or threat) credible. There are others.

GT-35. b. Let’s look at Player A. If Player B defects (top row), A does better by defecting, getting 1 instead of 0. If B cooperates (bottom row), A also does better by defecting, getting 5 instead of 3. Since it is always better for A to defect, that’s A’s dominant strategy. The situation is identical for Player B.

GT-36. b. If both players defect, neither player can improve unilaterally given their opponents choice of defection. Any other combination, there’s always a way for at least one player to improve, specifically by switching from cooperation to defections.

GT-37. a. The best outcome for both players is if they cooperate.

GT-38. a. The efficient outcome is both players cooperate. The Nash equilibrium and Dominant Strategy has both players defecting, not acting efficiently. And if both players agreed to cooperate with each other, in self interest, both players would violate the agreement and cheat by switching to defect. This describes a Prisoners’ Dilemma

GT-39. b. For a commitment, promise, or threat to work, your opponent MUST know about it. Keeping it secret makes the play ineffective.

GT-40. c. In the battle of the sexes, the only issue is which option do they mutually agree to.

GT-41. d. I the game of chicken, there’s only one winner (but it is possible to have two losers).

GT-42. a. In the prisoners’ dilemma, both players can benefit if they collude (or cooperate). However, both players could even better if either one of them broke that agreement.

GT-43. b. In the stag hunt, both players would be best off if they hunt the stag together. If they were to both choose to hunt the stag, either player is worse off if they violate that agreement. This is why the game is different than a prisoners’ dilemma. The only issue then is that both players need to be assured that the other will follow through and hunt the stag.

GT-44. a. A solution for the prisoners’ dilemma is to punish a player who defects and breaks the collusion agreement. That’s what tit-for-tat does. If one player defects, the other player reciprocate the next round by defecting.

GT-45. d. In the Superbowl (or any particular game), there can only be a single winner. That’s like the game of chicken – though there are more issues where it may not fit chicken perfectly. For example, there are elements of a Stag Hunt to make the Superbowl very entertaining so that both teams, and the NFL, make more money.

GT-46. a. In negotiating for players, both teams would be better off if they colluded and agreed to pay players a lot less. Both teams could end up with the same players and thus the same teams, but save a lot on cost. However, if one team did that and kept their salaries low, another team could cheat, offer higher salaries and steal the best players away benefiting them at the expense of the other team.

GT-47. a. In the prisoners’ dilemma, both players see the benefit to colluding and would agree to do it. But then, there’s an incentive to violate that agreement.

GT-48. c. In the battle of sexes, both players will want to do the same activity. The issue is which one. If one player always gets their way, the other will take offense and may defect just to punish the other. The solution is to take turns choosing the activity. People have this one pretty well figured out.

GT-49. d. In the game of chicken, both players say they won’t swerve, and each hopes the other will break that promise.

GT-50. a. In the prisoners’ dilemma, both players fear the other will defect recognizing that there’s an incentive to defect.
GT-51. c. The wording suggests both parties would benefit if they cooperate to make the country well off. The only problem is which way the country will lean.

GT-52. d. The difference between an assurance and a promise is that it is in your self-interest to follow through on an assurance.

GT-53. c. The difference between a threat and a warning is that it is NOT in your interest to carry out the threat. Because it is not in your self-interest to follow through, a threat may not be seen as credible.

GT-54. a. Saying that you'll do something no matter what your opponent does is a pre-commitment (or just commitment).

GT-55. e. By definition, it is NOT in your self-interest to follow through on a promise. Because a promise is not in your self-interest, it may not be seen as credible.

GT-56. b. By definition, it is in your self-interest to follow through on a warning. Thus a warning is credible.

GT-57. b. Your action, defecting if your opponent defects, would harm your opponent, so it is either a warning or threat. It’s a warning because if your opponent defects, it’s in your self-interest to defect too.

GT-58. e. Your action, cooperating if your opponent cooperates, would benefit your opponent, so it is either a promise or assurance. If your opponent cooperates, it is in your self-interest to defect and receive an even bigger payoff. Saying you will cooperate when it is in your self-interest to defect is making a promise.

GT-59. a. In the game of chicken, if you can make a credible pre-commitment to not swerve, then your opponent’s only option is to swerve, and you win. A game theorist suggested that in the game of chicken, a player should remove their steering wheel and throw it out of the car.

GT-60. d. If your opponent hunts the stag (cooperates), it is in your self-interest to hunt the stag too (cooperate). That makes your statement an assurance, not a promise. Some refer to a Stag Hunt game as an Assurance game since that’s all that is needed to solve it, for players to recognize and state that they’ll do what is in their self-interest to do.

GT-61. a. This sounds like a threat. If your partner (opponent) chooses to go to Canada, it is in your self-interest to also go to Canada. So to say you’ll go to Mexico sounds like a threat. It harms your opponent, and it is NOT in your self-interest. However, if your opponent says they will go to Mexico, you’ll choose Mexico. And your statement says that if your opponent chooses Canada, you’ll choose Mexico. You will go to Mexico no matter way. You’ve pre-commited.
#5: Oligopoly

Answers

Ol-1. c. The market will be in the lower left square where B makes $20,000 in profit

Ol-2. c. No matter what Firm B has done, Firm A is always better off cutting price.

Ol-3. a. Profits for both firms will be higher if they both collude and agree to maintain price

Ol-4. b. The worst outcome for either firm occurs if that firm maintains their price while the other firm cuts theirs. Thus, to avoid this, each firm will cut their price.

Ol-5. d. Collusion would result in both maintaining price.

Ol-6. b. Firm B, by reducing their price below the competition (they cut their price, but Firm A maintains the higher price), steals customers away from Firm A and increases their profit.

Ol-7. b. Both the Nash equilibrium and the Dominant Strategy would have the firms each cut their current price.

Ol-8. c. An oligopoly is seen having only a few (significant) firms

Ol-9. b. Low barriers are an obstacle to collusion. High barriers would keep other firms out and make collusion more possible

Ol-10. d. The goal of collusion is to maximize total industry profits. It’s not how much any one firm makes in profit, but how much all firms collectively make.

Ol-11. a. The contestable market theory suggests that even though there may only be one or a few firms in the industry, the threat of competition creates an effectively perfectly competitive market which is efficient.

Ol-12. d. see table. A makes $8,000 and B makes $14,000.

Ol-13. a. Total profits in the industry would be $36,000 which is greater than any other option in the table.

Ol-14. a. If both firms charge $12, Firm B makes $16,000. But if Firm B cuts their price to $10, its profits rise to $17,000. This is because by under-cutting Firm A, they attract more customers.

Ol-15. c. If both firms charge $10, Firm B makes $14,000. But if Firm B cuts their price to $8, its profits fall to $13,000. This is because even though they might have more customers, the revenue has fallen. Price is now too close to cost.

Ol-16. b. If Firm B sets a price of $14, Firm A will make the most with a price of $12. Profit for Firm A will be $20,000 which is more than $18,000 if they match the $14 price. And is more than the $18,000 if they reduce price all the way to $10.

Ol-17. c. If B sets a price of $8, Firm A will maximize profit at a price of $10. They’ll make $11,000 instead of $10,000 if they price at $8 or $8,000 of profit if they price at $12.

Ol-18. e. There is no dominant strategy. If A sets a price of $14, B should set a price of $12. If A sets a price of $12, $10, or $8, B should price at $10. So there is no one strategy for B that works no matter what A does. Under one condition B should price at $12. Under other conditions it should price at $10.

Ol-19. c. $10 is the Nash equilibrium because if Firm A thinks B will charge $10, then A should charge $10. Once A charges $10, Firm B WILL charge $10. So B does what A assumed. The reasoning works the same for B. If B thinks A will price at $10, B should price at $10, and if B prices at $10, A will, as assumed, price at $10.
Ol-20. c. A Nash equilibrium occurs when each player bases their self-interested decision upon a correct prediction of the other player’s decision. The Nash equilibrium in Table 2 is at $10 & $10. Both firms will price at $10 assuming the other stays at $10, and thus they both end up staying at $10.

Ol-21. d. If Firm A assumes B will set a price of $12, Firm A will set a price of $10 to make $17,000 instead of $16,000. But if Firm A sets a price of $10, then Firm B will want to set a price of $10 to make $14,000 instead of $12,000. If either firm assumes the other will charge a price of $12, neither Firm will end up doing it. The decision is not made about a correct prediction of the other player’s action.

Ol-22. b. Consider the table below. If both companies invest in the technology, consumers value the new products and it increases profits for both firms. If neither firm invests, then profits stay the same. What happens if one firm invests and one doesn’t? The firm that doesn’t invest has the same profits. But the one that did, doesn’t have increase in sales because the technology is useless unless the other firm also invests. But that firm does have the increased cost of developing the technology. It makes sense for both firms to invest and increase profits. If both firms do this, there is no incentive to defect, so it’s not a prisoners’ dilemma.

<table>
<thead>
<tr>
<th>Invest in Tech</th>
<th>Don’t Invest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Visionary</strong></td>
<td></td>
</tr>
<tr>
<td>Invest in Tech</td>
<td>A: profits up</td>
</tr>
<tr>
<td></td>
<td>B: profits up</td>
</tr>
<tr>
<td>Don’t Invest</td>
<td>A: profits lower</td>
</tr>
<tr>
<td></td>
<td>B: profits same</td>
</tr>
</tbody>
</table>

Ol-23. b. Since this is a Stag Hunt game, what each firm needs is assurance both will follow through. Asking to see what Visionary has done should give Acme some assurance. Making plans to show more of what each are doing should continue to give assurance so both will continue.

Ol-24. c. The firms should continue to cooperate and development the technology. However, the issue is which communication technique, Bluetooth or infrared? Each firm wants to use their current technology hoping the other will agree. The only mistake is to not agree, but each wants their own. Movies or tennis? Vacation in Hawaii or Tahoe? You need to be together, but each person prefers a different together. This is Battle of the Sexes.

Ol-25. a. This is a credible, irreversible, pre-commitment. By beginning production that can’t be altered, it leaves Visionary with a choice of using Bluetooth which means both firms profit, but Acme profits more. Or, Visionary uses infrared in which case both firms, including Visionary, lose the chance of an increase in profits. This leaves Visionary with an obvious choice, go to Bluetooth. If I were Visionary, I would send your Acme a bill for half the cost of using the Bluetooth instead of infrared. If you failed to pay, production of the TV’s would stop and everyone would lose big. This is an ultimatum. It would work if I were credible.

Ol-26. d. This is an example of who should swerve. Someone needs to advertise. The question is who? See the table below. If both firms advertise, they maintain their markets but lose the money spent on combating the inferior technology of X-5. If neither firm combats the inferior technology, they both go bankrupt (it would also work if I said profits are lower by a very large amount). In the game of chicken, this is the result if neither firm swerves and they plow head-on into each other. Not a good strategy. Each firm hopes the other will take on the X-5 technology.
Assuming the dismissal of your advertising firm is credible, then this leaves Cell-Gamma either not advertising and you both lose, or advertising and saving both of you.

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<th>Advertise</th>
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<td><strong>Advertise</strong></td>
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<td><strong>Cell-Gamma</strong></td>
<td>B: profits lower</td>
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<td><strong>Don’t Ad</strong></td>
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<td>B: profits same</td>
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Ol-27. e.
#6: Industry Review

IR-1. d. Barriers to entry are associated with monopolies and oligopolies. Since the question says “few”, that means oligopoly.

IR-2. a. Perfect competition is efficient.

IR-3. d. Mutual interdependence happens when there are a few large firms. That means the industry is an oligopoly.

IR-4. c. Many firms with differentiated product is best analyzed using Monopolistic Competition

IR-5. b & d. Both monopoly and oligopoly assume barriers to entry.

IR-6. a. Many small firms is competition. If they’re producing identical products then this is perfect competition.

IR-7. a & c (under some circumstances, d too). In both Perfect Competition and Monopolistic Competition, firms will not make profit in the long run.

IR-8. d. Game Theory analyzes the interdependence of firms which is characteristic of Oligopolies

IR-9. d. A few interdependent firms is best analyzed using the oligopoly model

IR-10. b. Barriers to entry and no close substitution describe a pure monopoly

IR-11. d. Collusion is most like when there are just a few interdependent firms, an oligopolistic industry.

IR-12. a. Perfectly Competitive firms are price takers

IR-13. b, c & d. All firms except perfectly competitive firms have some control over price and thus are “price makers” or have “market power.”

IR-14. c. Monopolistic Competitors are price makers, but the competition producing close substitutes will eliminate profits in the long run. Monopolies and Oligopolies are price makers but they might make profit in the long run.
#7: More Questions Exam 3

Answers:

EM-1. b. The fixed cost is found by looking at the TC when Q=0.


EM-4. d. As price goes down, Quantity increases which means the firm has market power.

EM-5. d. At a price of $18, Q=3. TR = P * Q, so 3*18 = 54

EM-6. b. TR at Q = 4 is $60. TR at Q = 5 is $60. So change in TR is 0, so MR is 0.

EM-7. d. Monopolies reduce production more and charge higher prices.

EM-8. e. Perfectly competitive firms are efficient at all times (with a few exceptions mentioned back in the first section, for example, externalities).

EM-9. c. If demand is more elastic, the price will be closer to perfect competition and the firm will be more efficient.

EM-10. a. In the lower run, perfectly competitive firms produce at the lowest part of LRAC (and ATC) which is called “productive efficient”.

EM-11. b. Collusion means that firms join together and act as a single firm, a monopoly, to increase profits at the cost of consumer surplus. The cut in production to drive prices higher generates a deadweight loss and inefficiency.

EM-12. e. All of the answers make collusion more difficult so the firms would more likely to act efficiently.


EM-14. a. The government uses all of those policies. Anti-trust includes the Sherman Act. Governments have set prices for “utilities” such as electricity or water. The government may own the monopoly such as the post office. Or the government can try to introduce competition through loosening licensing or using anti-trust laws.

EM-15. d. It’s the demand curve that is tangent to ATC and is downward sloping.

EM-16. d. D2, D3, and D5 are all downward sloping, so they could represent monopolistic competition. D4 is a long run equilibrium, so it’s not included.

EM-17. c. Both D2 and D3 have the firm making a profit, so new firms would enter.

EM-18. b. D2 has the greatest demand and would yield the highest profit.

EM-19. a. D1 is perfectly elastic so the firm is a price taker which would be perfect competition.

EM-20. a. Perfect competition is efficient, so D1 would be the efficient demand curve.

EM-21. d. Note: D5 isn’t an option. And “most efficient” is the same as “least inefficient”. The least inefficient firm that isn’t a price taker would be the most elastic demand curve that is still downward sloping, that’s D4.

EM-22. a. The shut down point is $2 (bottom of AVC).

EM-23. c. The breakeven point is $6 (bottom of ATC).

EM-24. c. The firm will make an economic profit if the price is above the breakeven point ($6)

EM-25. a. In a highly competitive industry, firms will enter if there is economic profit. In the long run, firms entering will lead to firms breaking even.

EM-26. e.
What's efficient?
Price: $16
Qty: 425

At a quantity of 425, is demand elastic or inelastic? **Elastic because MR > 0 (though if you do the number crunching it may not come out exactly right)**

At a quantity of 600, is demand elastic or inelastic? **Inelastic, because MR < 0.**

What will happen in the long run? Since the firm is making a profit, new firms will enter and produce close substitutes. The firm’s demand curve will shift left and flatten (become more elastic).

If this firm is a monopolistic competitor, in the long run, the firm will be producing fewer than how many goods? **In the long run, the demand curve will become tangent to ATC where ATC slopes down. That must be a quantity less than 300. That the monopolistic competitor is producing less than the minimum cost location (quantity of 300) is why economists say the firm has “excess capacity”**.
At Q=100, VC = $500  TC = $1700  
At Q = 140, FC = $1200 (you can’t find FC at Q=140, but you can find FC at Q=100, and since it’s FC, it’ll be the same)

If Market Price is $10, then Q = 120, ATC = $16, TR = $1200, TC = $1920, Profit = $-720

If Market Price is $15, then Q = 160, ATC = $15, TR = $2400, TC = $2400, Profit = $0

If Market Price is $20, then Q = 200, ATC = $16, TR = $4000, TC = $3200, Profit = $800

If Market Price is $4, then Q = 0, ATC = Undefined, TR = $0, TC = $1200 (FC), Profit = $-1200

If the Market in this graph is in long run equilibrium the price is: $15 (bottom of ATC)

There are 80 firms in the industry identical to the firm represented above. What is the quantity supplied in the industry at a price of $10? 9600

If the Industry for the firm above is in long run equilibrium, and the quantity demanded for the good if price is $15 is 320,000, how many firms will there be in the industry? 2,000 (each firm will produce 160 at $15, and if people want 320,000, then there needs to be 2,000).

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<td>4</td>
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What is the MC of Good 4? $6
What is the ATC of 5 goods? $7.2
What is the FC of 2 goods? $8