

Econ 2010 (sec 100), Fall 2010

First Midterm

Version A

There are 51 questions, spread over 14 pages

The answer key is at the end.

I have commented, in red, on some of the questions. These are the questions that had the lowest % correct answers.

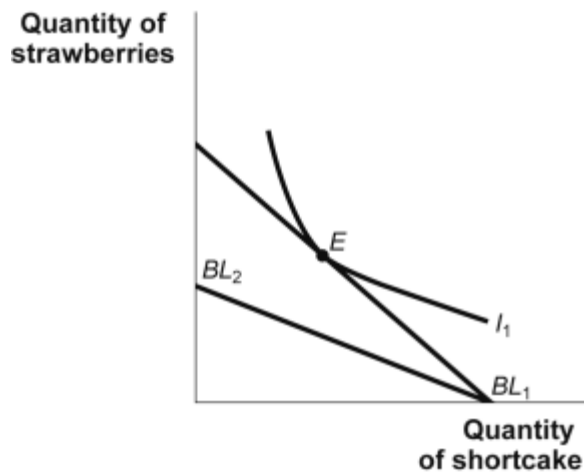
Make sure, now, that you understand all of the questions and can answer them correctly on the final. I will re-ask many questions, after I have changed their costumes.

Name: _____ Date: _____

1. The change in total output resulting from a one-unit increase in the quantity of an input used, holding the quantities of all other inputs constant, is:
 - A) marginal cost.
 - B) average cost.
 - C) marginal product.
 - D) average product.

Use the following to answer question 2:

Figure: Changing Budget Line Strawberries and Shortcake



2. (Figure: Changing Budget Line Strawberries and Shortcake) The graph shows a consumer who enjoys strawberries and shortcake. His original budget line is given by BL_1 and his original indifference curve is given by I_1 . Which of the following would have caused his budget line to move to BL_2 ?
- The price of strawberries decreased.
 - The consumer's income decreased.
 - The price of strawberries increased.
 - The price of shortcake increased.
3. The pollution-producing elasticity of demand for gasoline most likely, and most specifically, means
- The percentage change in demand for gasoline divided by how much pollutants in gasoline have increased.
 - The percentage change in demand for gasoline divided by how much pollutants in gasoline have increased.
 - The percentage change in the demand for gasoline divided by the percentage change in how much gasoline pollutes
 - The percentage change in how much gasoline pollutes divided by the resulting percentage change in the demand for gasoline.
4. Suppose Justin's Candy Factory currently employs five workers who produce candy. With these five workers, the average production of candy is 10 candies per worker. Upon hiring one additional worker, the average production of candy per worker decreases to 9 candies. What is the marginal product of the new worker?
- 4
 - 1
 - 2
 - 3
5. Fabian wants to get exactly 70% on the final. Fabian produces the exam score using two inputs: hours of study time and milligrams of a drug that helps him to concentrate. Which of the following statements is both correct and most informative
- His isoquant for producing a 70% result is the rate at which he can substitute study hours for milligrams of drugs in the production of the 70% score
 - His isoquant for producing the 70% score identifies all the different ways he would like to achieve a 70% score.
 - His isoquant for producing a 70% result identifies all those combinations of study hours and milligrams of drugs that will just get him a score of 70%.
 - Fabian will get a 70% score on the exam

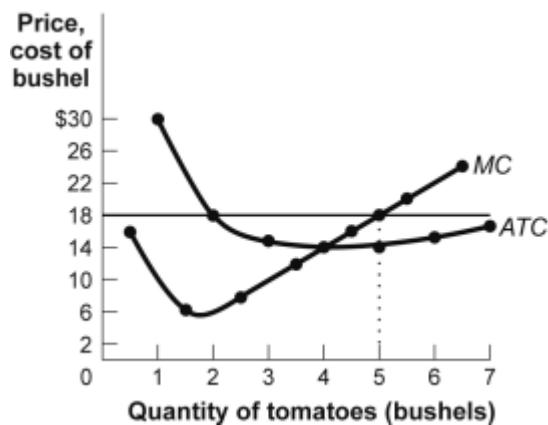
6. In the theory of the firm, we use "isoquants". Breaking down the term we have "quant" as in "quantity," and "iso" as in "one," meaning every point on an isoquant corresponds to the same quantity. The analogous concept in regards to consumer theory is_____.
- A) An Indifference curve
 - B) Preferences
 - C) A budget line
 - D) Utility
7. All else equal, when there are only two goods, X & Y, if the price of good X goes up and the price of good Y goes down, the opportunity cost of consuming good X will decrease.
- A) True
 - B) False
8. Karen consumes gasoline and other goods. A new excise tax on gasoline raises gas prices. However, the government pays Karen an income subsidy that is just enough for her to stay on her original (pre-tax) indifference curve. Her new optimal consumption bundle will have:
- A) less of other goods and more gas.
 - B) This question can't be answered, since some essential information (such as Karen's income, the pre- and post-tax prices of gas, etc.) is missing.
 - C) less gas and more of other goods.
 - D) the same amount of both goods as before.

This question is about income and substitution effects. The increased price of gas increases the relative price of gas. After this price increase (rotation in her budget line), the original utility-maximizing bundle of gas and other goods is no longer the utility-maximizing bundle. The new utility max. bundle is on a lower indifference curve (she is worse off). But then the government gives her an income subsidy that gets her back to the original indifference curve, but facing a higher relative price for gas (slope of her budget line as changed). She reacts to the change in relative price, holding utility constant, and consumes less gas. The income subsidy eliminated the *income effect* caused by the increased price, so Karen's adjustment to the relative price change is her *substitution effect*, which pushes her away from gas.

9. A major state university in Colorado might raise tuition by 12%. An economics professor at this university asked his students, "Due to the increase in tuition, how many of you will leave the University?" Thirty students out of 300 said they will leave. Based on this information, the price elasticity of demand for education at this university is:
- highly elastic.
 - one cannot tell.
 - Inelastic
 - Elastic
10. Justin has a daily income of \$20 to spend on food while at college. Justin can only consume two types of food, pizza at \$2 a slice and salad at \$4 a dish. In addition, his religion does not allow him to consume more than 1,000 calories per day. The calories of pizza per slice and the calories of salad per dish are 250 and 100, respectively. If Justin spends all his income to consume these two foods, then per day _____.
- Justin can consume a maximum of 5 slices of pizza.
 - Justin can consume a maximum of 5 dishes of salad.
 - Justin can consume a maximum of 10 dishes of salad.
 - Justin can consume a maximum of 10 slices of pizza.

Use the following to answer question 11:

Figure: Revenues, Costs, and Profits



11. (Figure: Revenues, Costs, and Profits) At the profit-maximizing quantity of output in the figure, total revenue is \$_____, total cost is \$_____, and profit is \$_____.
- 90; 70; 20
 - 48; 56; -8
 - 90; 14; 76
 - 30; 42; -12

12. Indifference curves must be downward sloping.
- A) True
 - B) False
13. In lecture, we looked at an example where Professor Morey's daughter, Fred, was paid \$1 per-mile skied. In this example, all of Fred's equipment (skis, boots, poles, winter coat etc.) was purchased by her parents. Fred's marginal cost per mile is positive and always increasing: the more she skis the slower she goes. Fred has no fixed costs. Choose the alternative that is both correct and most informative.
- A) Average cost might initially decrease, but eventually increases.
 - B) **Average cost is always increasing and never greater than marginal cost.**
 - C) Average cost is always increasing.
 - D) Average cost will not decrease.
- Marginal cost is always increasing, and there are not fixed costs, so mc is always pulling average cost up, from above. That is, mc is always greater than ac, so ac is "never greater than mc."**
14. Lot of people exercise to lose weight, or not gain weight. These people will be more successful in achieving their weight goals if their
- A) weight elasticity of exercise is inelastic
 - B) exercise elasticity of weight is inelastic
 - C) weight elasticity of exercise is elastic.
 - D) exercise elasticity of weight is elastic
15. Basic consumer theory, as we learned in class, assumes that individual rank goods not bundles.
- A) True
 - B) False

16. If the number of constraints faced by a consumer increases, the number of consumption bundles available to the consumer must decrease.

- A) True
- B) **False**

This is a difficult question. One could demonstrate the answer is false by drawing an example where there is, for example, a money budget constraint and a time budget constraint but the individual, for example, does not have enough time to ever be able to exhaust their money constraint. (Bill and Melinda don't have enough time to spend all of their money.) In this case, we would say that the money constraint does not bind.

However, one might reasonably counter argue that a constraint that does not constrain is not a constraint, which is a reasonable thing to conclude.

So given the question, I am going to add one percent to everyone's score independent of whether they got answered true or false.

Use the following to answer question 17:

Table: Total Cost and Output

Output	Total Cost
0	\$ 10
1	60
2	80
3	110
4	170
5	245

17. (Table: Total Cost and Output) The table describes Bart's perfectly competitive ice cream-producing firm. If the market price is \$67.50, how many units of output will the firm produce?
- A) Three
 - B) **Four**
 - C) Two
 - D) One

Profits will increase for every unit increase in output as long as price (what Bart can sell a unit of ice cream for) is greater than marginal cost. The marginal cost of the first unit is \$50, \$20 for the second, \$30 for the third, \$60 for the 4th, and \$75 for the 5th. He should produce four units: he makes a profit on each of the first 4 units, but would lose money on the 5th.

18. Which is NOT a correct statement.
- A) There can be many kinds of elasticity of demand depending on the factors that affect the quantity demanded.
 - B) If the demand curve is horizontal (price on the vertical axis), the price elasticity of demand is zero.
 - C) Elasticity is a way of measuring responsiveness.
 - D) If the demand curve is vertical (price on the vertical axis), demand is not responsive at all to a price change.
19. In lecture, we looked at an example where Professor Morey's daughter, Fred, was paid \$1 per mile skied. Fred's only cost was the value of her time, \$3 an hour. In order to maximize profit, Fred will ski up the point where her marginal cost equals \$3.
- A) True
 - B) **False**
Up to the point where price equals marginal cost. She gets paid \$1/mile, not \$3/mile.
20. If *A* and *B* are two consumption bundles, which of the following statements is consistent with utility being an ordinal, rather than a cardinal, concept?
- A) I prefer *A* to *B*.
 - B) I prefer *B* to *A* by a very small margin—only 1.5 utils.
 - C) I prefer *A* to *B* by an amount equal to 6.5 utils.
 - D) *A* provides me with twice as much satisfaction as *B*.

21. "The demand for textbooks is price inelastic." Which of the following would explain this statement?
- A) Textbook purchases consume a large portion of most students' income.
 - B) The good is a necessity.
 - C) Students have a lot of time to adjust to price changes.
 - D) Many alternative textbooks can be used as substitutes.
22. Which of the following cost concepts is correctly defined?
- A) $ATC = AVC + AFC$
 - B) $MC = \frac{\Delta TC}{\Delta L}$
 - C) $TC = AVC + AFC$
 - D) $ATC = VC + FC$

Use the following to answer questions 23-24:

Table: Production of Cabinets

Quantity of Labor (workers)	Quantity of Cabinets Q	Marginal Product of Labor (cabinets per worker)
0	0	
1	5	5
2	11	6
3	16	5
4	20	4
5	23	3
6	25	2
7	26	1
8	25	-1

23. (Table: Production of Cabinets) Assume cabinets sell for \$100 each. If each cabinetmaker could be hired at no cost, how many cabinetmakers would your firm employ?
- A) Seven
 - B) Eight
 - C) Six
 - D) Two

24. (Table: Production of Cabinets) The table shows how many cabinets your firm can make with a variable quantity of labor hired. After which worker does the firm begin to experience diminishing returns to labor?
- A) Second
 - B) Fourth
 - C) First
 - D) Third
25. Consider a world of only two commodities: X and Y, both bads. Y is on the vertical axis. George's indifference curves must slope downward.
- A) True
 - B) False
26. James enjoys swimming, but only when it is very warm. Last summer, the average air temperature was 95 degrees and James went swimming 45 times. This summer, the average air temperature was 105 degrees and James went swimming 55 times. Assuming that everything but temperature remained the same, James' temperature-elasticity of demand over this period was?
- A) Elastic
 - B) Perfectly Elastic
 - C) Inelastic
 - D) Unit-Elastic
27. Suppose that Justin can buy two goods, Books (B) and Candy (C). Justin's total utility function is $Utility = B + C$. Here, B and C represent the number of Books and Candies he consumes. Suppose the prices of Books and Candy are \$4 per unit and \$2 per unit respectively, and Justin's income is \$20 per month. Which of the following is Justin's optimal consumption bundle?
- A) 0 units of B and 10 units of C
 - B) 5 units of B and zero units of C
 - C) 3 units of B and 4 units of C
 - D) 5 units of B and 10 units of C

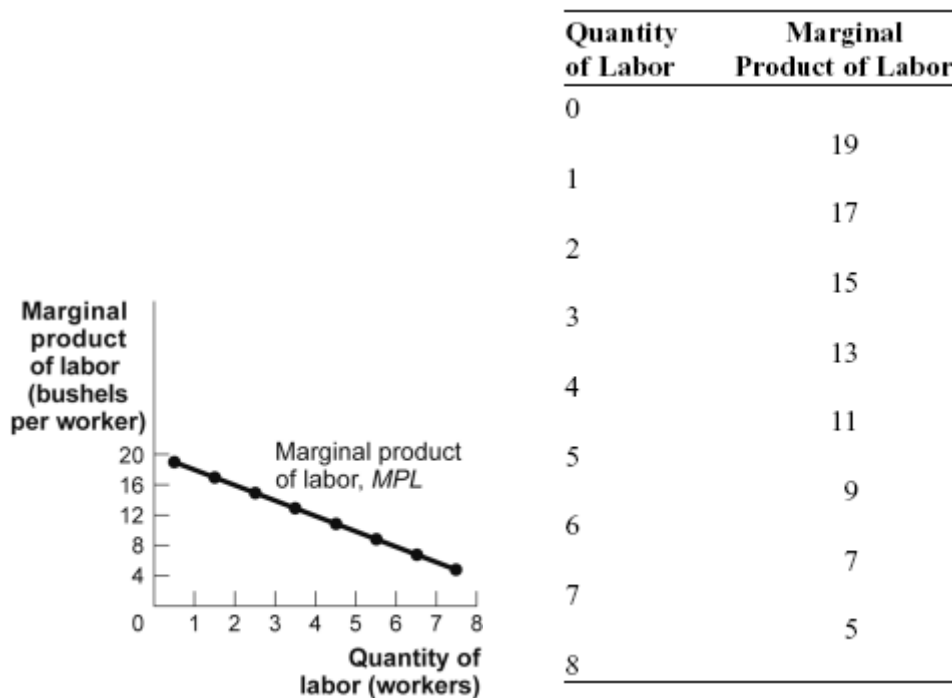
28. When the price of a Lady Gaga concert ticket in Boulder is \$100 per seat, the ticket office can sell 10,000 tickets. When the price of a ticket is \$150 per seat, they can sell 8,000 tickets. Which of the following statements is true?
- A) The demand for this ticket is price inelastic, and so an increase in the price of the ticket will increase the total revenue of the ticket seller.
 - B) The demand for this ticket is income inelastic, and so an increase in the price of the ticket will increase the total revenue of the ticket seller.
 - C) The demand for this ticket is price inelastic, and so an increase in the price of the ticket will decrease the total revenue of the ticket seller.
 - D) The demand for this ticket is income inelastic, and so an increase in the price of the ticket will decrease the total revenue of the ticket seller.

29. The marginal product of labor is:

- A) the slope of the total product of labor curve.
 - B) the change in average product divided by the change in the quantity of labor.
 - C) the change in output that occurs when capital increases by one unit. **this is the MP of capital**
 - D) the change in labor divided by the change in total product. **the opposite of this one**
- Which is how much output increases when labor increases by one unit, the MP of labor.**

Use the following to answer question 30:

Figure: Marginal Product of Labor



30. (Figure: Marginal Product of Labor) Using the marginal product of labor curve in the figure, the total product of labor for three workers is:
- A) 15 bushels.
 - B) 51 bushels.
 - C) 45 bushels.
 - D) 39 bushels.
31. I care about only two things: scotch and Swiss chocolate bars. Consider my utility function and indifference curves. My utility function looks like the crater of a volcano: my indifference curves are circles and the quantities of both commodities are positive at the bottom of the crater. Which of the following statements is both correct and most informative?
- A) Scotch starts off as a good and then becomes a bad
 - B) Scotch and chocolate are both bads
 - C) **Chocolate is initially a bad but then becomes a good.**
 - D) Scotch is initially a good but then becomes a bad
- Picture a bunch of non-overlapping circles emanating out from the bottom of the crater, each circle containing all the smaller circles. The bottom of the crater being a point, rather than a circle. This point is lowest utility, and it is located at a positive amount of scotch and chocolate. As you move away from this point in any direction you move to a higher indifference curve/circle—higher utility. So both goods start off as bad (increasing consumption moves you lower down into the crater) but once one gets past the bottom of the crater one start up the other side with utility increasing, both commodities now goods. I as a similar question last year with utility circles, but the circles forming a mountain rather than a crater.**
32. Ingrid, when she is in Sweden, and not skiing for CU, consumes only pickled herring and Akvavit (a Swedish type of booze). She loves Akvavit: the more the better, but is indifferent to the amount of pickled herring she eats. Consider her indifference curves with Akvavit on the vertical axis and herring on the horizontal axis
- A) Ingrid's indifference curves are vertical lines
 - B) Ingrid's indifference curves are downward sloping
 - C) Ingrid's indifference curves are upward sloping
 - D) **Ingrid's indifference curves are flat (horizontal lines)**
- This question was asked last year but with Akvavit and herring switched. Increasing the booze, holding herring constant makes her better off (moves her vertically to a higher indifference curve). Increasing herring holding booze constant, moving horizontally, keeps her indifferent.**

33. An indifference curve that is further away from the origin always indicates a higher level of utility than one closer to the origin.
- A) True
 - B) **False**
Consider our numerous examples from class. For example, when both commodities are bads.
34. Marginal revenue:
- A) is the price divided by the change in quantity.
 - B) is the change in quantity divided by the change in total revenue.
 - C) is the slope of the average revenue curve.
 - D) **equals the market price in perfect competition.**
Marginal revenue is the change in total revenue when one more unit is sold. In perfect competition every unit is sold at p , so p is marginal revenue.
35. John Smedley, a careful maximizer of utility, consumes only two goods, peanut butter and broccoli. He had just achieved the utility-maximizing solution in his consumption of the two goods, then the price of broccoli rises. As he adjusts to this event, he will consume:
- A) less peanut butter and more broccoli.
 - B) more peanut butter and more broccoli.
 - C) more peanut butter and less broccoli.
 - D) **not sure**
- The price increase cause a change in relative prices and a change in real income (his utility decreases). So, as presented in class, and the book, the change can be divided into two effects: a *substitution effect* and an *income effect*. The substitution effect, by itself, will push in the direction of less broccoli, but the income effect might push in the opposite direction, so the overall result could be an decrease or an increase in broccoli consumption.
36. Joe has \$2000 to spend on two potential goods. He can spend it on golfing, or attending football games. It costs \$100 per round of golf and \$200 per football game attended. Additionally, Joe has a total of 24 hours to spend on these goods per week. It takes Joe 3 hours for a round of golf and 4 hours to attend a football game. For a week, which of the following is **false**?
- A) Joe can play 4 rounds of golf and attend 9 football games.
 - B) Joe can attend 3 football games and play 4 rounds of golf.
 - C) Joe can attend a maximum of 6 football games a week
 - D) Joe can play 7 rounds of golf.

37. Mabel, a women in class, told me she hates dog poop, but when forced to choose between two bundles, she chose the one with more dog poop. In the economic sense of the term, is Mabel necessarily "irrational"?
- A) No
 - B) Yes
38. According to the substitution effect, which of the following best described why a decrease in the price of a product leads to an increase in the quantity of the product demanded?
- A) Buyers always purchase fewer substitute goods.
 - B) Buyers tend to purchase more of the now relatively less expensive good.
 - C) Buyers tend to purchase more complementary goods.
 - D) Buyers have more real income.
39. There are three bundles: F, G, and M. I strictly prefer M to G, I am indifferent between G to F, and am indifferent between M and F. Is my behavior consistent with rationality in the economic sense of the term?
- A) Not enough information to tell
 - B) Yes
 - C) No
40. Consumer theory requires a cardinal measure of utility.
- A) True
 - B) False
41. As defined in the text, the long run is a planning period:
- A) that must be between 6 months and 5 years.
 - B) that must be over 6 months in length.
 - C) in which a firm can adjust all resources.
 - D) that is at least 5 years in length.
42. Which of the following statements is false?
- A) The slope of the line tangent to any point on the indifference curve represents the marginal rate of substitution.
 - B) The marginal rate of substitution must be different at every point of an indifference curve.
 - C) Using an indifference curve for two goods, we can calculate the opportunity cost of increasing the level of consumption of either good.
 - D) Every consumption bundle on the same indifference curve will yield the same amount of utility.

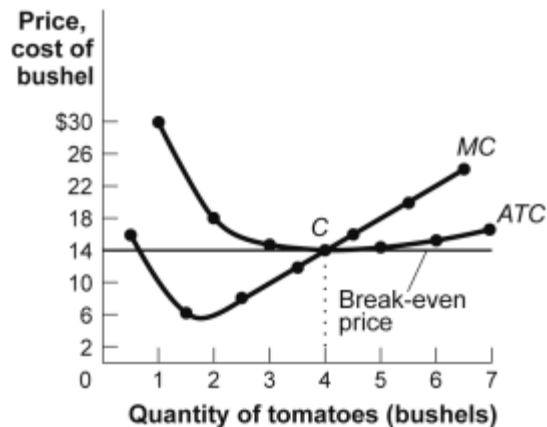
43. In the perfectly competitive guidebook industry, the market price is \$35. A firm is currently producing 10,000 guidebooks; average total cost is \$38, marginal cost is \$30, and average variable cost is \$30. The firm should:
- A) keep output the same, because the firm is producing at minimum average variable cost.
 - B) currently losing money, so necessarily shut down (stop production).
 - C) raise the price of guidebooks, because the firm is losing money.
 - D) produce more guidebooks, because the next guidebook produced increases profit by \$5.

Currently, the firm is not maximizing its short-run profit: price is greater than MC so short-run profits would increase if output is increased. The firm should not **necessarily** shut down. First it should stop being stupid in the short-run and see if profits become positive.

44. You are weighing the opportunity cost of going to college. This opportunity cost includes everything **except** _____.
- A) The income you would have earned at the job you would be working if you were not in college
 - B) What you would have purchased with the money you spent on text books.
 - C) What you would have purchased with tuition dollars.
 - D) The increased stress associated with college

Use the following to answer question 45:

Figure: Total Cost



45. (Figure: Total Cost) In the figure, total cost at the profit-maximizing quantity of bushels is \$_____.
- A) 72
 - B) 3.50
 - C) 14
 - D) 56
46. Consider a world of only two goods: X and Y. Y on the vertical axis, George's indifference curves must slope downward.
- A) True
 - B) False
47. Price-takers are individuals in a market who:
- A) have no ability to affect the price of a good in a market.
 - B) select a price from a wide range of alternatives.
 - C) select the lowest price available in a competitive market.
 - D) select the average of prices available in a competitive market.
48. Sally Garcia devotes all of her income to the consumption of two goods, apples and Reese's Peanut Butter Cups. She has just discovered that at her current level of consumption the marginal utility of an apple is 6 and the marginal utility of a Reese's Peanut Butter Cup is 8. Suppose the price of an apple is \$0.10, while the price of a Reese's Peanut Butter Cup is \$0.25. To maximize her total utility, assuming that the goods are divisible, she would:
- A) There is not enough information to justify a change in her current level of consumption.
 - B) consume more apples and fewer Reese's Peanut Butter Cups.
 - C) consume more Reese's Peanut Butter Cups and fewer apples.
 - D) consume less of both goods.
49. A cost that does not depend on the quantity of output produced is called a:
- A) fixed cost.
 - B) average cost.
 - C) marginal cost.
 - D) variable cost.

50. In the "Story of Fred", as presented in class, her "wage rate" was \$3/hr. Assume you were explaining, to the class, why it is \$3. Which of the following is the best explanation
- A) Fred values her time at this dollar amount because she values alternative activities
 - B) \$3 is what Fred could make doing chores
 - C) \$3/hr is the rate at which the market values Fred's time
 - D) Fred values her friends and other activities and gives these things up when she skis.
51. In perfect competition:
- A) the firm's total revenue curve is a linear, downward-sloping line.
 - B) at any price, the greater the quantity sold, the greater is a firm's marginal revenue.
 - C) the firm's total revenue curve is nonlinear.
 - D) a firm's total revenue is found by multiplying market price by the firm's quantity of output.

Answer Key

1. C
2. C
3. C
4. A
5. C
6. A
7. B
8. C
9. C
10. B
11. A
12. B
13. B
14. D
15. B
16. B
17. B
18. B
19. B
20. A
21. B
22. A
23. A
24. A
25. A
26. A
27. A
28. A
29. A
30. B
31. C
32. D
33. B
34. D
35. D
36. A
37. A
38. B
39. C
40. B
41. C
42. B
43. D
44. D

- 45. D
- 46. A
- 47. A
- 48. B
- 49. A
- 50. A
- 51. D