Philosophy 120 Introductory Logic  Final Exam Summer 2007

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

INSTRUCTIONS: The following selections relate to distinguishing arguments from nonarguments and identifying conclusions. Select the best answer for each.

___ 1. Assume that the universe is 14 billion years old. If we look at a galaxy that is 12 billion light years away, we see it as it was 12 billion years ago, when the universe was only 2 billion years old. Thus, simply by looking to great distances, we can see what parts of the universe looked like when the universe was younger. The key limitation to this ability is the power of our telescopes.
   Jeffrey Bennett, et al., The Cosmic Perspective, 3rd edition
   a. Nonargument.
   b. Argument; conclusion: The key limitation ... power of our telescopes.
   c. Argument; conclusion: Simply by looking ... universe was younger.
   d. Argument; conclusion: Assume that the universe is 14 billion years old.
   e. Argument; conclusion: If we look at a galaxy ... 2 billion years old.

___ 2. Liquids and gasses have the property of being fluid-that is, they flow-because their atoms, ions, or molecules are not so strongly attracted to each other as they are in solids. Not being confined to specific locations, the particles in a liquid can move past one another.
   a. Argument; conclusion: Not being confined ... move past one another.
   b. Argument; conclusion: Their atoms, ions, or molecules ... as they are in solids.
   c. Argument; conclusion: Liquids and gasses ... they flow.
   d. Nonargument.
   e. Argument; conclusion: Liquids and gasses have the property of being fluid.

___ 3. The Social Security system is a pay-as-you-go arrangement where contributions by today's workers are paid out to yesterday's retirees. If part of today's contributions go into private retirement accounts, they cannot be paid out. To make up the shortage, the government will have to borrow massive amounts of money. Hence, Social Security privatization will cause a huge increase in the federal deficit.
   a. Nonargument.
   b. Argument; conclusion: If part of today's contributions ... cannot be paid out.
   c. Argument; conclusion: Social security privatization ... federal deficit.
   d. Argument; conclusion: The Social Security System ... to yesterday's retirees.
   e. Argument; conclusion: To make up the shortage ... massive amounts of money.

___ 4. The U.S. is the largest single market in the world in terms of national income. It represents roughly 25 percent of the total world market for all products and services. Thus, U.S. companies that wish to achieve maximum growth potential must "go global" because 75 percent of the world market potential is outside their home country.
   Warren J. Keegan and Mark C. Green, Global Marketing
   a. Argument; conclusion: U.S. companies that wish ... must "go global."
   b. Argument; conclusion: It represents ... products and services.
   c. Argument; conclusion: 75 percent of the world market ... home country.
   d. Nonargument.
   e. Argument; conclusion: The U.S. is the largest ... national income.
INSTRUCTIONS: The following problems relate to identifying and evaluating inductive and deductive arguments. Select the best answer for each.

5. Tom's car has a flat tire. Someone must have slashed it with a knife.
   a. Deductive, valid.
   b. Deductive, unsound.
   c. Inductive, strong.
   d. Deductive, invalid.
   e. Inductive, weak.

6. Every dancer on the floor has a partner. Hence, there are an even number of dancers on the floor.
   a. Deductive, invalid.
   b. Inductive, weak.
   c. Deductive, valid.
   d. Deductive, sound.
   e. Inductive, strong.

7. The print at the bottom of this full box of Cheerios says NET WT 15 OZ. Therefore, the contents must weigh 15 ounces.
   a. Inductive, weak.
   b. Inductive, uncogent.
   c. Deductive, valid.
   d. Inductive, strong.
   e. Deductive, invalid.

8. No theocracies are true democracies. No secular governments are theocracies. Thus, some secular governments are true democracies.
   a. Inductive, strong.
   b. Deductive, invalid.
   c. Deductive, valid.
   d. Deductive, cogent.
   e. Deductive, weak.

9. Either Maurice Green or Justin Gatlin won an Olympic gold medal in 2004. Maurice Green did not win one in 2004. Thus, Justin Gatlin did.
   a. Inductive, strong.
   b. Deductive, invalid.
   c. Deductive, valid.
   d. Inductive, cogent.
   e. Inductive, weak.

INSTRUCTIONS: In the questions below you are given a statement, its truth value in parentheses, and an operation/relation to be performed on that statement. You must identify the new statement and the truth value of the new statement. Adopt the Aristotelian standpoint and assume that A and B denote things that actually exist.

10. All A are non-B. (F) Conversion
    a. All non-B are A. (F)
    b. All B are non-A. (Und.)
    c. All non-B are A. (Und.)
    d. No A are non-B. (Und.)
    e. All B are non-A. (F)
INSTRUCTIONS: In the following questions you are given a statement, its truth value in parentheses, and a new statement. You must determine how the new statement is related to the given statement and determine the truth value of the new statement. Adopt the Aristotelian standpoint and assume that A and B denote things that actually exist.

11. Some non-A are B. (T)  Subcontrary
   a. All non-A are B. (Und.)
   b. Some non-A are not B. (Und.)
   c. Some non-A are not B. (F)
   d. Some B are non-A. (T)
   e. All non-A are B. (T)

12. All non-A are B. (F)  Contradictory
   a. All non-A are not B. (T)
   b. Some A are not B. (T)
   c. No non-A are B. (Und.)
   d. All non-B are A. (F)
   e. Some non-A are not B. (T)

13. Some A are non-B. (F)  Subalternation
   a. All A are non-B. (Und.)
   b. Some non-B are A. (F)
   c. Some A are not non-B. (T)
   d. All A are non-B. (F)
   e. Some A are not non-B. (Und.)

14. No A are non-B. (T)  Contraposition
   a. All A are non-B. (F)
   b. All A are B. (T)
   c. No B are non-A. (Und.)
   d. No B are non-A. (T)
   e. All A are non-B (Und)

15. No A are B. (T)  Some A are B.
   a. Contrary. (F)
   b. Contradictory. (F)
   c. Conversion. (T)
   d. Subcontrary. (Und.)
   e. Subalternation. (T)

16. No A are non-B. (F)  No non-B are A.
   a. Conversion. (F)
   b. Contrary. (Und.)
   c. Conversion. (Und.)
   d. Contraposition. (Und.)
   e. Contraposition. (T)

17. All A are B. (F)  No A are B.
   a. Contrary. (T)
   b. Contradictory. (T)
   c. Contrary. (Und.)
   d. Subcontrary. (T)
   e. Subcontrary. (Und.)
**INSTRUCTIONS:** Select the answer that best characterizes the following immediate inferences. Adopt the Aristotelian standpoint for these problems.

___ 18. It is false that some cases of genocide are not attacks on humanity. Therefore, it is false that no cases of genocide are attacks on humanity.
   a. Invalid, illicit contrary.
   b. Invalid, illicit subcontrary.
   c. Invalid, illicit subalternation.
   d. Valid.
   e. Invalid, illicit conversion.

___ 19. No uncooked vegetables are healthy vegetables. Therefore, no unhealthy vegetables are cooked vegetables.
   a. Invalid, illicit obversion.
   b. Valid.
   c. Invalid, illicit conversion.
   d. Invalid, illicit contrary.
   e. Invalid, illicit contraposition.

___ 20. No headless horsemen are keen sighted riders. Therefore, no keen sighted riders are headless horsemen.
   a. Invalid, illicit contrary.
   b. Valid.
   c. Invalid, illicit conversion.
   d. Invalid, illicit contraposition.
   e. Invalid, existential fallacy.

___ 21. Some reclusive gnomes are not playful sprites. Therefore, some playful sprites are not reclusive gnomes.
   a. Invalid, existential fallacy.
   b. Invalid, illicit subcontrary.
   c. Invalid, illicit conversion.
   d. Invalid, illicit contraposition.
   e. Valid.

**Venn Diagram 1C**
Given the following syllogistic form,

No P are M.
No S are M.
No S are P.

___ 22. Given Venn Diagram 1C, after filling in the Venn diagram,
   a. Areas 2, 3, and 4 are shaded, and there is an X in Area 5.
   b. Areas 5, 6, and 7 are shaded, and there is an X in Area 2.
   c. Areas 2, 3, and 4 are shaded, and there are no other marks.
   d. Areas 2, 3, 4, and 6 are shaded.
   e. Areas 5, 6, and 7 are shaded, and there are no other marks.
23. For the syllogistic form in Venn Diagram 1C, the mood and figure is:
   a. AAA-2.
   b. III-3.
   c. EEE-3.
   d. III-2.
   e. EEE-2.

24. For the syllogistic form in Venn Diagram 1C, the answer from the Boolean standpoint is:
   a. Invalid, exclusive premises.
   b. Invalid, illicit major.
   c. Invalid, drawing a negative conclusion from negative premises.
   d. Valid, no fallacy.
   e. Invalid, illicit minor.

Venn Diagram 2C
Given the following syllogistic form,

Some P are M.
All M are S.
Some S are P.

25. Given Venn Diagram 2C, after filling in the Venn diagram,
   a. Areas 1 and 4 are shaded, and there is an X on the line between Areas 2 and 3.
   b. Areas 5 and 6 are shaded, and there is an X in Area 3.
   c. Areas 1 and 2 are shaded, and there is an X in Area 3.
   d. Areas 1 and 4 are shaded, and there is an X in Area 3.
   e. Areas 1 and 4 are shaded, and there is an X on the line between Areas 3 and 6.

26. For the syllogistic form in Venn Diagram 2C, the mood and figure is:
   a. OAO-4.
   b. IAI-4.
   c. EAE-4.
   d. IAI-1.
   e. OAO-1.

27. For the syllogistic form in Venn Diagram 2C, the answer from the Boolean standpoint is:
   a. Invalid, undistributed middle.
   b. Invalid, illicit major.
   c. Invalid, existential fallacy.
   d. Valid, no fallacy.
   e. Invalid, illicit minor.
Venn Diagram 4C

Given the following syllogistic form,

Some P are not M.
All M are S.  
Some S are not P.

28. Given the Venn Diagram 4C, after filling in the Venn diagram,
   a. There is an X on the line between Areas 2 and 5 and between Areas 6 and 7.
   b. Areas 1 and 4 are shaded, and there is an X on the line between Areas 6 and 7.
   c. Areas 5 and 6 are shaded, and there is an X in Area 7.
   d. Areas 1 and 4 are shaded, and there is an X on the line between Areas 3 and 6.
   e. Areas 2 and 3 are shaded, and there is an X on the line between Areas 6 and 7.

29. For the syllogistic form in Venn Diagram 4C, the mood and figure is:
   a. OAO-1.  
   b. OEO-4.  
   c. OAO-4.  
   d. IAI-1.  
   e. EAO-4.

30. For the syllogistic form in Venn Diagram 4C, the answer from the Boolean standpoint is:
   a. Invalid, illicit minor.
   b. Invalid, undistributed middle.
   c. Invalid, drawing a negative conclusion from an affirmative premise.
   d. Invalid, illicit major.
   e. Valid, no fallacy.

31. Given the following syllogism:

All unicorns are horses.
No tigers are horses.
No tigers are unicorns.

This syllogism is:
   a. Valid from the Aristotelian standpoint only.
   b. Invalid from both the Boolean and the Aristotelian standpoints.
   c. Valid from the Boolean standpoint only.
   d. Valid from both the Boolean and the Aristotelian standpoints.
   e. Conditionally valid from the Aristotelian standpoint.
INSTRUCTIONS: Select the correct translation for the following problems.

32. If Williams increases enrollment, then not both Fordham and Georgetown expand course offerings.
   a. $W \lor \sim (F \supset G)$
   b. $W \supset \sim (F \lor G)$
   c. $W \supset (\sim F \land \sim G)$
   d. $W \equiv \sim (F \land G)$
   e. $W \supset (F \land G)$

33. Rice hires new faculty only if neither Duke nor Tulane increases student aid.
   a. $(\sim (D \lor T)) \supset R$
   b. $R \equiv \sim (D \lor T)$
   c. $R \supset (\sim D \land \sim T)$
   d. $(\sim D \land \sim T) \supset R$

34. Tulane increasing enrollment is a necessary condition for Duke's reducing class size if and only if Fordham's raising tuition is a sufficient condition for Georgetown's expanding course offerings.
   a. $(D \lor T) \equiv (F \lor G)$
   b. $(D \supset T) \equiv (F \supset G)$
   c. $(T \supset D) \equiv (G \supset F)$
   d. $(F \supset G) \supset (D \supset T)$
   e. $(D \supset T) \supset (F \supset G)$

35. Rice's reducing class size is a sufficient and necessary condition for Baylor's hiring new faculty unless Amherst's raising tuition implies that either Georgetown or Fordham does not offer new scholarships.
   a. $(R \equiv B) \lor [A \supset (\sim G \lor \sim F)]$
   b. $(B \supset R) \lor [A \supset (\sim G \land F)]$
   c. $(R \supset B) \lor [A \supset (\sim G \land \sim F)]$
   d. $[A \supset (\sim G \lor \sim F)] \supset (R \equiv B)$
   e. $(R \equiv B) \lor [A \supset (\sim G \lor F)]$

Exhibit 2A
Given that A and B are true and X and Y are false, determine the truth value of the following proposition.

$\sim (A \cdot \sim X) \equiv [A \supset (Y \lor \sim B)]$

36. The proposition in Exhibit 2A is:
   a. True.
   b. False.

37. In Exhibit 2A, the main operator is a:
   a. Tilde.
   b. Wedge.
   c. Horseshoe.
   d. Dot.
   e. Triple bar.
Exhibit 2B
Given that A and B are true and X and Y are false, determine the truth value of the following proposition.

\([\neg (A \cdot X) \supset (\neg B \equiv Y)] \cdot [\neg (Y \lor \neg A) \equiv (B \cdot X)]\)

38. The proposition in Exhibit 2B is:
   a. True.
   b. False.

39. In Exhibit 2B, the main operator is a:
   a. Wedge.
   b. Horseshoe.
   c. Dot.
   d. Tilde.
   e. Triple bar.

Exhibit 3A
Use an ordinary truth table to answer the following questions. Construct the truth table as per the instructions in the textbook.

Given the statement: \(\neg (H \supset A) \lor (A \supset H)\)

40. The statement in Exhibit 3A is:
   a. Self-contradictory.
   b. Inconsistent.
   c. Consistent.
   d. Tautologous.
   e. Contingent.

Exhibit 3B
Use an ordinary truth table to answer the following question. Construct the truth table as per the instructions in the textbook.

41. Given the statement: \([(N \lor R) \supset \neg R] \equiv R\)

   This statement is:
   a. Consistent.
   b. Self-contradictory.
   c. Tautologous.
   d. Contingent.
   e. Logically equivalent.
Exhibit 3C
Use an ordinary truth table to answer the following questions. Construct the truth table as per the instructions in the textbook.

Given the statement: \((M \supset \sim E) \lor (R \supset E)\)

___ 42. The statement in Exhibit 3C is:
   a. Tautologous.
   b. Self-contradictory.
   c. Contingent.
   d. Inconsistent.
   e. Valid.

___ 43. Given the pair of statements: \(M \supset L\) and \(\sim (L \supset M)\)

   These statements are:
   a. Inconsistent.
   b. Invalid.
   c. Consistent.
   d. Logically equivalent.
   e. Contradictory.

___ 44. Given the pair of statements: \(N \lor (E \cdot \sim H)\) and \((H \cdot \sim N) \lor \sim (E \lor N)\)

   These statements are:
   a. Consistent.
   b. Contradictory.
   c. Inconsistent.
   d. Logically equivalent.
   e. Valid.

INSTRUCTIONS: Use indirect truth tables to answer the following problems.

___ 45. Given the argument: \(R \supset (G \cdot D) / N \supset (A \cdot L) / R \lor N / L \supset K / D \cdot K\)

   This argument is:
   a. Uncogent.
   b. Sound.
   c. Invalid.
   d. Valid.
   e. Cogent.

___ 46. Given the argument: \((S \lor B) \supset M / S \lor \sim Q / A \supset B / A \lor Q / M\)

   This argument is:
   a. Cogent.
   b. Valid.
   c. Sound.
   d. Uncogent.
   e. Invalid.
47. Given the statements: \( N \supset (L \cdot S) \lor (S \lor W) \supset B / G \supset \sim B / G \supset N \)

These statements are:
- Consistent.
- Invalid.
- Tautologous.
- Logically equivalent.
- Inconsistent.

**INSTRUCTIONS:** Determine whether the following symbolized arguments are valid or invalid by identifying the form of each. In some cases the argument must be rewritten using double negation or commutativity before it has a named form. Those arguments without a specific name are invalid.

48. \( E \lor \sim N \)
\( \sim N \)
\( \sim E \)

- AC--invalid.
- MT--valid.
- DA--invalid.
- MP--valid.
- Invalid.

49. \( (\sim H \supset B) \cdot (L \supset \sim T) \)
\( T \lor \sim B \)
\( H \lor \sim L \)

- MT--valid.
- DD--valid.
- CD--valid.
- HS--valid.
- CD--invalid.

50. \( \sim T \supset \sim W \)
\( \sim T \)
\( \sim W \)

- MP--valid.
- AC--valid.
- MT--valid.
- AC--invalid.
- DS--valid.

51. \( (L \supset \sim C) \cdot (D \supset \sim Q) \)
\( \sim L \lor \sim D \)
\( C \lor Q \)

- DA--invalid.
- CD--valid.
- Invalid.
- DD--valid.
- CD--invalid.
52. \( \sim A \supset \sim H \)
   
   \[ E \supset \sim A \]
   
   \[ E \supset \sim H \]
   
   a. DD--valid.
   b. MP--valid.
   c. CD--valid.
   d. Invalid.
   e. HS--valid.

53. \( \sim P \supset \sim D \)
   
   \[ \sim D \]
   
   \[ \sim P \]
   
   a. MP--valid.
   b. DA--invalid.
   c. AC--invalid.
   d. MT--valid.
   e. DS--invalid.

54. \( (S \supset Q) \bullet (\sim W \supset \sim C) \)
   
   \[ \sim W \lor S \]
   
   Q \lor \sim C
   
   a. MP--valid.
   b. Invalid.
   c. DD--valid.
   d. CD--valid.
   e. DD--invalid.

**INSTRUCTIONS:** Select the conclusion that follows in a single step from the given premises.

55.

1) \( C \supset (\sim L \lor \sim N) \)
2) \( (C \bullet L) \supset \sim N \)
3) \( N \)
   
   a. \( \sim (C \bullet L) \)
   2, 3, MT
   b. \( (C \supset \sim L) \lor \sim N \)
   1, Assoc
   c. \( (C \supset \sim N) \bullet (L \supset \sim N) \)
   2, Dist
   d. \( C \supset \sim N \)
   2, Simp
   e. \( C \supset (L \bullet N) \)
   1, DM

56.

1) \( D \supset (\sim A \lor \sim A) \)
2) \( \sim A \supset (R \bullet M) \)
3) \( \sim R \bullet \sim M \)
   
   a. \( D \supset \sim A \)
   1, Taut
   b. \( D \supset A \)
   1, DN
   c. \( D \supset (R \bullet M) \)
   1, 2, HS
   d. \( \sim \sim A \)
   2, 3, MT
   e. \( \sim (R \bullet M) \)
   3, DM
57.
1) \( P \supset L \)
2) \(~(J \cdot O)\)
3) \((L \supset A) \supset (J \cdot O)\)

   a. \( L \supset P \) 1, Com
   b. \(~J \cdot ~O\) 2, DM
   c. \( P \supset A \) 1, 3, HS
   d. \(~(L \supset A)\) 2, 3, MT
   e. \(~J\) 2, Simp

58.
1) \( E \supset (B \cdot J) \)
2) \((J \cdot B) \supset ~L\)
3) \(L\)

   a. \( E \supset ~L \) 1, 2, HS
   b. \(~(J \cdot B)\) 2, 3, MT
   c. \((B \cdot J) \supset ~L\) 2, Com
   d. \(J\) 2, Simp
   e. \((E \supset B) \cdot (E \supset J)\) 1, Dist

59.
1) \( E \)
2) \(R \supset ~E\)
3) \(N \supset (~C \supset R)\)

   a. \(~R\) 1, 2, MT
   b. \(E \cdot H\) 1, Add
   c. \(~C \supset ~E\) 2, 3, HS
   d. \(E \supset ~R\) 2, Trans
   e. \((N \cdot ~C) \supset R\) 3, Exp

60.
1) \( C \supset (H \cdot M)\)
2) \((T \supset S) \supset C\)
3) \(T\)

   a. \((C \supset H) \cdot M\) 1, Assoc
   b. \(T \supset (S \cdot C)\) 2, Exp
   c. \((C \supset H) \cdot (C \supset M)\) 1, Dist
   d. \(S\) 2, 3, MP
   e. \((T \supset S) \supset (H \cdot M)\) 1, 2, HS
61.
1) \( \neg W \)
2) \( C \lor W \)
3) \( R \supset \neg (C \lor W) \)
   a. \( R \supset (\neg C \bullet \neg W) \) 3, DM
   b. \( \neg R \) 2, 3, MT
   c. \( C \) 1, 2, DS
   d. \( (C \lor W) \supset \neg R \) 3, Trans
   e. \( \neg C \supset W \) 2, Impl

62.
1) \( B \)
2) \( \neg R \supset K \)
3) \( B \supset (K \supset E) \)
   a. \( (B \supset K) \supset E \) 3, Assoc
   b. \( \neg R \supset E \) 2, 3, HS
   c. \( R \lor K \) 2, Impl
   d. \( K \supset E \) 1, 3, MP
   e. \( B \bullet N \) 1, Add

63.
1) \( \neg (F \bullet J) \)
2) \( \neg F \)
3) \( (F \bullet H) \lor (F \bullet J) \)
   a. \( F \bullet H \) 1, 3, DS
   b. \( F \bullet (H \lor J) \) 3, Dist
   c. \( F \lor (H \bullet J) \) 3, Dist
   d. \( \neg F \bullet \neg J \) 1, DM
   e. \( F \) 3, Simp

64.
1) \( H \lor M \)
2) \( E \supset \neg (H \lor M) \)
3) \( (H \supset D) \bullet (M \supset O) \)
   a. \( \neg H \supset M \) 1, Impl
   b. \( \neg E \) 1, 2, MT
   c. \( H \) 1, Simp
   d. \( M \supset O \) 3, Simp
   e. \( D \lor O \) 1, 3, CD
Problem

**INSTRUCTIONS:** Use natural deduction to derive the conclusion in the following problem(s). Use an ordinary proof (not conditional or indirect proof). (3 Points/Proof, Please use next page and the attached sheet of paper.)

65.
1) $K \lor (S \cdot N)$
2) $\neg (K \cdot \neg Q)$
3) $\neg (N \cdot \neg Q)$  / $Q$

66.
1) $F \supset (J \lor \neg F)$
2) $J \supset (L \lor \neg J)$  / $F \supset L$

67. 1) $(E \cdot J) \supset K$
2) $E \lor W$
3) $J$  / $K \lor W$

68.
1) $C \supset (\neg C \lor G)$
2) $\neg G$  / $\neg C$

**INSTRUCTIONS:** Use natural deduction to derive the conclusion in the following problem(s).

69. Use conditional proof.
1) $D \supset (E \supset R)$
2) $N \supset (R \supset \neg E)$  / $(D \cdot N) \supset \neg E$
MULTIPLE CHOICE

1. ANS: C    PTS: 1
2. ANS: D    PTS: 1
3. ANS: C    PTS: 1
4. ANS: A    PTS: 1
5. ANS: E    PTS: 1
6. ANS: C    PTS: 1
7. ANS: D    PTS: 1
8. ANS: B    PTS: 1
9. ANS: C    PTS: 1
10. ANS: C   PTS: 1
11. ANS: B   PTS: 1
12. ANS: E   PTS: 1
13. ANS: D   PTS: 1
14. ANS: C   PTS: 1
15. ANS: B   PTS: 1
16. ANS: A   PTS: 1
17. ANS: C   PTS: 1
18. ANS: D   PTS: 1
19. ANS: E   PTS: 1
20. ANS: B   PTS: 1
21. ANS: C   PTS: 1
22. ANS: C   PTS: 1
23. ANS: E   PTS: 1
24. ANS: A   PTS: 1
25. ANS: D   PTS: 1
26. ANS: B   PTS: 1
27. ANS: D   PTS: 1
28. ANS: B   PTS: 1
29. ANS: C   PTS: 1
30. ANS: D   PTS: 1
31. ANS: D   PTS: 1
32. ANS: E   PTS: 1
33. ANS: C   PTS: 1
34. ANS: B   PTS: 1
35. ANS: A   PTS: 1
36. ANS: A   PTS: 1
37. ANS: E   PTS: 1
38. ANS: B   PTS: 1
39. ANS: C   PTS: 1
40. ANS: E   PTS: 1
41. ANS: B  PTS: 1
42. ANS: A  PTS: 1
43. ANS: C  PTS: 1
44. ANS: B  PTS: 1
45. ANS: C  PTS: 1
46. ANS: B  PTS: 1
47. ANS: A  PTS: 1
48. ANS: E  PTS: 1
49. ANS: B  PTS: 1
50. ANS: A  PTS: 1
51. ANS: C  PTS: 1
52. ANS: E  PTS: 1
53. ANS: C  PTS: 1
54. ANS: D  PTS: 1
55. ANS: E  PTS: 1
56. ANS: A  PTS: 1
57. ANS: D  PTS: 1
58. ANS: C  PTS: 1
59. ANS: E  PTS: 1
60. ANS: E  PTS: 1
61. ANS: A  PTS: 1
62. ANS: D  PTS: 1
63. ANS: B  PTS: 1
64. ANS: E  PTS: 1

PROBLEM

65. ANS:
   Answer not provided.
   PTS: 1

66. ANS:
   Answer not provided.
   PTS: 1

67. ANS:
   No answer provided
   PTS: 1

68. ANS:
   No answer provided.
   PTS: 1

69. ANS:
   Answer not provided.
   PTS: 1
1. C
2. D
3. C
4. A
5. E
6. C
7. D
8. B
9. C
10. C
11. B
12. E
13. D
14. C
15. B
16. A
17. C
18. D
19. E
20. B
21. C
22. C
23. E
24. A
25. D
26. B
27. D