

## PHI 120-Summer 2009-Final Exam

### Multiple Choice

Identify 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. Incandescent light bulbs eventually burn out because the high temperature of the filament causes tungsten atoms to fly off and collect on the inside of the bulb's glass. This loss of tungsten is slowed, but not prevented, by introducing argon inside the bulb's envelope. As more and more atoms are lost, the filament disintegrates. When this happens, no electricity flows through the filament, and the bulb produces no light.
- Argument; conclusion: Incandescent light bulbs eventually burn out.
  - Argument; conclusion: The high temperature of the filament ... the bulb's glass.
  - Argument; conclusion: The filament disintegrates.
  - Argument; conclusion: When this happens ... the bulb produces no light.
  - Nonargument.
- \_\_\_\_\_ 2. Incandescent light bulbs eventually burn out because the high temperature of the filament causes tungsten atoms to fly off and collect on the inside of the bulb's glass. This loss of tungsten is slowed, but not prevented, by introducing argon inside the bulb's envelope. As more and more atoms are lost, the filament disintegrates. When this happens, no electricity flows through the filament, and the bulb produces no light.
- Argument; conclusion: Incandescent light bulbs eventually burn out.
  - Argument; conclusion: The high temperature of the filament ... the bulb's glass.
  - Argument; conclusion: The filament disintegrates.
  - Argument; conclusion: When this happens ... the bulb produces no light.
  - Nonargument.
- \_\_\_\_\_ 3. Finding an identity as a Latino is a tricky issue in the United States because the pressure to assimilate is being repressed by the pressure to retain your roots. If you are deemed too assimilated into American culture, you are branded a "gringo" by your peers or even a turncoat to your blood and country. If you shun all American culture, you are branded as a freeloading malcontent who would be better off going back to where he came from. It is a lose-lose situation.
- Mario Feirro, Letter to the editor
- Argument; conclusion: Finding an identity ... in the United States.
  - Nonargument.
  - Argument; conclusion: If you are deemed too assimilated ... blood and country.
  - Argument; conclusion: If you shun all American culture ... where he came from.
  - Argument; conclusion: The pressure to assimilate ... retain your roots.
- \_\_\_\_\_ 4. Mass extinctions shape the overall pattern of macroevolution. The history of life on this earth includes many episodes of mass extinction in which many groups of organisms were wiped off the face of the planet. Mass extinctions are followed by periods of radiation where new species evolve to fill the empty niches left behind. It is probable that surviving a mass extinction is largely a function of luck. Thus, contingency plays a large roll in patterns of macroevolution.
- Chris Colby, *Introduction to Evolutionary Biology*
- Nonargument.
  - Argument; conclusion: The history of life on this earth ... face of the planet.
  - Argument; conclusion: Mass extinctions shape the overall pattern of macroevolution.
  - Argument; conclusion: It is probable that surviving ... a function of luck.
  - Argument; conclusion: Contingency plays a large roll in patterns of macroevolution.

- \_\_\_\_\_ 5. Water is abundant over most of the earth's surface, and within the temperature range usually encountered there, it is liquid. Water also is a powerful solvent. Consequently, water is an excellent medium for the chemical processes of living systems. It is hard to imagine life having any other basis than water.  
Robert E. Ricklefs, *The Economy of Nature*, 5<sup>th</sup> ed.
- a. Argument; conclusion: It is hard to imagine life having any other basis than water.
  - b. Nonargument.
  - c. Argument; conclusion: Water is abundant ... it is liquid.
  - d. Argument; conclusion: Water is an excellent medium ... living systems.
  - e. Argument; conclusion: Water also is a powerful solvent.

**INSTRUCTIONS:** The following problems relate to identifying and evaluating inductive and deductive arguments. Select the best answer for each.

- \_\_\_\_\_ 6. If the northern pike is a ferocious predator, then it is a threat to lake trout. The northern pike is indeed a threat to lake trout. Therefore, the northern pike is a ferocious predator.
- a. Inductive, weak.
  - b. Inductive, strong.
  - c. Deductive, valid.
  - d. Inductive, cogent.
  - e. Deductive, invalid.
- \_\_\_\_\_ 7. Louis graduated from college after Cheri, and Cheri graduated before Denise. Therefore, it follows necessarily that Louis graduated before Denise.
- a. Deductive, valid.
  - b. Deductive, invalid.
  - c. Inductive, strong.
  - d. Inductive, sound.
  - e. Inductive, weak.
- \_\_\_\_\_ 8. Laura is the sister of either Rachel or Sandy, and Sandy is the sister of Beth. Therefore, it follows necessarily that Laura is the sister of Beth.
- a. Deductive, invalid.
  - b. Deductive, sound.
  - c. Inductive, strong.
  - d. Deductive, valid.
  - e. Inductive, weak.
- \_\_\_\_\_ 9. If interest rates rise, then home sales will decline. Thus, if interest rates rise, then real estate prices will drop, because if home sales decline, then real estate prices will drop.
- a. Deductive, invalid.
  - b. Inductive, cogent.
  - c. Deductive, valid.
  - d. Inductive, weak.
  - e. Inductive, strong.
- \_\_\_\_\_ 10. After Sally stopped wearing Levi jeans, she started having vision problems. Therefore, to clear up her vision problems, Sally should go back to wearing her Levi's.
- a. Inductive, weak.
  - b. Deductive, unsound.
  - c. Inductive, strong.
  - d. Deductive, invalid.
  - e. Deductive, valid.
- \_\_\_\_\_ 11. As global warming continues, the temperature of the world's oceans will rise. As ocean temperatures rise, hurricanes will become more intense. Therefore, hurricanes in the Caribbean will intensify in the years ahead.

- a. Inductive, weak.
- b. Inductive, strong.
- c. Deductive, valid.
- d. Deductive, sound.
- e. Deductive, invalid.

**INSTRUCTIONS:** Select the answer that best characterizes the following arguments.

- \_\_\_\_\_ 12. In his testimony to the grand jury, Steve Porter said that the CEO of the Syntex Corporation conspired with the CFO to defraud investors. Therefore, since Porter is in a position to know and has no reason to lie, we can conclude that these officers did indeed engage in such a conspiracy.
- a. No fallacy.
  - b. Amphiboly.
  - c. Appeal to unqualified authority.
  - d. False cause.
  - e. Begging the question.
- \_\_\_\_\_ 13. Betty is opposed to capital punishment by lethal injection. But doctors inject patients with all sorts of medicines every day. For example, vaccines against flu, pneumonia, and tetanus are injected into millions of patients. Antibiotics are injected for a whole host of bacterial infections, and insulin is injected for diabetes. Obviously Betty's views are not supported by the evidence.
- a. Red herring.
  - b. Appeal to pity.
  - c. No fallacy.
  - d. Slippery slope.
  - e. Straw man.
- \_\_\_\_\_ 14. Harry shouldn't be thrown out of college for cheating. He's been on academic probation for the past year, and this has caused terrible stress. The poor guy hasn't been able to sleep at night, he can't keep his food down, and he's constantly sick with worry about his future. Surely you can find it in your hearts to give him a second chance.
- a. Missing the point.
  - b. Appeal to force.
  - c. False cause.
  - d. No fallacy.
  - e. Appeal to pity.
- \_\_\_\_\_ 15. Shortly after retiring from his job, Mr. Lopez had a heart attack and died. I think the message is clear: Whatever you do, never retire from your job.
- a. Missing the point.
  - b. Slippery slope.
  - c. No fallacy.
  - d. Appeal to the people.
  - e. *Post hoc ergo propter hoc*.
- \_\_\_\_\_ 16. If U.S. Presidents start more wars, then the U.S. will go broke. If U.S. Presidents start more wars, then every country will boycott U.S. products. Therefore, if every country boycotts U.S. products, then the U.S. will go broke.
- a. This argument contains a fallacy of grammatical analogy.
  - b. This argument contains a fallacy of relevance.
  - c. This argument contains no fallacy.
  - d. This argument contains a fallacy of ambiguity.
  - e. This argument contains a formal fallacy.

- \_\_\_\_\_ 17. More and more cars in this state are unable to pass the fuel emissions test. Therefore, it seems clear we should relax the emissions standard.
- Straw man.
  - No fallacy.
  - Missing the point.
  - Appeal to unqualified authority.
  - Argument against the person, abusive.
- \_\_\_\_\_ 18. The song "I lost My Love in Nashville" is very sad. But every song is composed of notes. Therefore, every note in that song is very sad.
- Division.
  - False cause.
  - Missing the point.
  - No fallacy.
  - Composition.
- \_\_\_\_\_ 19. Nobody has ever proved that the universe wasn't created in six days. Therefore, we must conclude that the universe was indeed created in six days, just like it says in *Genesis*.
- Appeal to ignorance.
  - False dichotomy.
  - No fallacy.
  - Hasty generalization.
  - Appeal to unqualified authority.

**Categorical Proposition 1C**

Given the categorical proposition:

"Some corporations that are operating in the United States are not enterprises that are earning a profit."

- \_\_\_\_\_ 20. In Categorical Proposition 1C:
- Both the subject term and the predicate term are distributed.
  - The subject term is distributed and the predicate term is undistributed.
  - The subject term is universal and the predicate term is particular.
  - The subject term is undistributed and the predicate term is distributed.
  - Both the subject term and the predicate term are undistributed.

**INSTRUCTIONS:** Select the correct answer for the following multiple choice questions.

- \_\_\_\_\_ 21. The categorical proposition "Some debts are causes of insomnia" is an:
- U-type.
  - I-type.
  - A-type.
  - O-type.
  - E-type.
- \_\_\_\_\_ 22. Given the categorical proposition "Some franchises are moneymakers." If both the quality and the quantity are changed, the resulting proposition is:
- All franchises are not moneymakers.
  - Some franchises are moneymakers.
  - All franchises are moneymakers.
  - No franchises are moneymakers.
  - Some franchises are not moneymakers.

**INSTRUCTIONS:** In the questions below 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. Take the Aristotelian standpoint and assume that 'A' and 'B' denote things that actually exist.

- \_\_\_ 23. Some non-A are not B. (T)                      Some non-A are B.  
a. Subcontrary. (Und.)  
b. Conversion. (Und.)  
c. Contradiction. (F)  
d. Contraposition. (T)  
e. Obversion. (T)

**INSTRUCTIONS:** Select the answer that best characterizes the following immediate inferences. Adopt the Aristotelian standpoint for these problems.

- \_\_\_ 24. It is false that some veterinarians are not animal lovers. Therefore, some veterinarians are animal lovers.  
a. Invalid, illicit conversion.  
b. Invalid, illicit subcontrary.  
c. Valid, no fallacy.  
d. Invalid, illicit subalternation.  
e. Invalid, existential fallacy.
- \_\_\_ 25. Some dark haired pixies are elves that play tricks. Therefore, some elves that do not play tricks are light haired pixies.  
a. Invalid, illicit conversion.  
b. Invalid, illicit contraposition.  
c. Invalid, existential fallacy.  
d. Invalid, illicit subcontrary.  
e. Valid, no fallacy.
- \_\_\_ 26. All holiday parades are colorful events. Therefore, some holiday parades are colorful events.  
a. Invalid, illicit subcontrary.  
b. Invalid, existential fallacy.  
c. Invalid, illicit contrary.  
d. Invalid, illicit subalternation.  
e. Valid, no fallacy.
- \_\_\_ 27. Some guitars are electronic devices. Therefore, some guitars are not electronic devices.  
a. Invalid, illicit subcontrary.  
b. Invalid, illicit subalternation.  
c. Valid, no fallacy.  
d. Invalid, illicit contraposition.  
e. Invalid, illicit contrary.

**Syllogistic Form 1C**

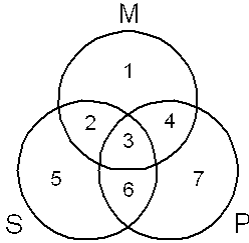
Given the following syllogistic form:

Some M are not P.

All M are S.

Some S are not P.

- \_\_\_ 28. For Syllogistic Form 1C, after filling in the Venn diagram,



- a. Areas 1, 2, and 4 are shaded, and there is an X in Area 3.  
 b. Areas 5 and 6 are shaded, and there is an X on the line between Areas 2 and 3.  
 c. Areas 1 and 4 are shaded, and there is an X in Area 3.  
 d. Areas 1 and 4 are shaded, and there is an X in Area 2.  
 e. Areas 6 and 7 are shaded, and there is an X on the line between Areas 2 and 3.
- \_\_\_ 29. For Syllogistic Form 1C, the answer from the Boolean standpoint is:  
 a. Invalid, existential fallacy.  
 b. Invalid, drawing a negative conclusion from a negative premise.  
 c. Invalid, exclusive premises.  
 d. Invalid, illicit major.  
 e. Valid, no fallacy.

### Syllogistic Form 2C

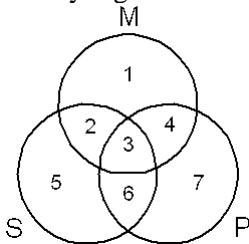
Given the following syllogistic form:

Some P are not M.

Some M are S.

Some S are not P.

- \_\_\_ 30. For Syllogistic Form 2C, the mood and figure is:  
 a. **EAE-3**  
 b. **IOI-4**  
 c. **OIO-4**  
 d. **OAO-1**  
 e. **AIA-4**
- \_\_\_ 31. For Syllogistic Form 2C, after filling in the Venn diagram,



- a. There is an X on the line between Areas 2 and 5 and between Areas 1 and 4.  
 b. There is an X on the line between Areas 2 and 3 and between Areas 6 and 7.  
 c. There is an X in Areas 2 and in Area 7.  
 d. There is an X on the line between Areas 1 and 2 and between Areas 5 and 6.  
 e. There is an X on the line between Areas 3 and 4 and in Area 3.
- \_\_\_ 32. For Syllogistic Form 2C, the answer from the Boolean standpoint is:  
 a. Invalid, illicit major.  
 b. Invalid, drawing a negative conclusion from an affirmative premise.  
 c. Invalid, illicit minor.

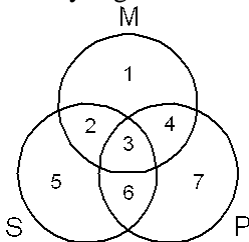
- d. Invalid, exclusive premises.
- e. Invalid, undistributed middle.

**Syllogistic Form 4C**

Given the following syllogistic form:

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

- \_\_\_ 33. For Syllogistic Form 4C, the mood and figure is:
  - a. **EEE-3**
  - b. **OOO-2**
  - c. **III-4**
  - d. **AAA-2**
  - e. **AAA-3**
- \_\_\_ 34. For Syllogistic Form 4C, after filling in the Venn diagram,



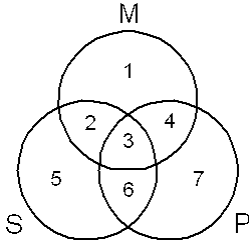
- a. Areas 1, 5, and 7 are shaded.
  - b. Areas 2, 3, and 4 are shaded.
  - c. Areas 5, 6, and 7 are shaded.
  - d. There is an X on the line between Areas 2 and 3 and between Areas 3 and 4.
  - e. All areas except Area 3 are shaded.
- \_\_\_ 35. For Syllogistic Form 4C, the answer from the Boolean standpoint is:
  - a. Invalid, undistributed middle.
  - b. Invalid, illicit minor.
  - c. Invalid, exclusive premises.
  - d. Valid, no fallacy.
  - e. Invalid, drawing an affirmative conclusion from universal premises.

**Syllogistic Form 5C**

Given the following syllogistic form:

No P are M.  
All S are M. \_\_\_\_\_  
 Some S are not P.

- \_\_\_ 36. For Syllogistic Form 5C, the mood and figure is:
  - a. **EAI-3**
  - b. **EAO-2**
  - c. **IAO-2**
  - d. **AEO-3**
  - e. **AEO-2**
- \_\_\_ 37. For Syllogistic Form 5C, after filling in the Venn diagram,



- a. Areas 5, 6, and 7 are shaded.
  - b. Areas 1, 2, 5, and 6 are shaded.
  - c. Areas 3, 4, 5, and 6 are shaded.
  - d. Areas 3 and 4 are shaded, and there is an X in Area 2.
  - e. Areas 2, 3, and 4 are shaded.
- \_\_\_ 38. For Syllogistic Form 5C, the answer from the Boolean standpoint is:
- a. Invalid, drawing a negative conclusion from a negative premise.
  - b. Valid, no fallacy.
  - c. Invalid, illicit major.
  - d. Invalid, exclusive premises.
  - e. Invalid, existential fallacy.
- \_\_\_ 39. Given the following syllogistic form,

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

This form is:

- a. Conditionally valid from the Boolean standpoint.
- b. Valid from the Aristotelian standpoint *on the condition that P's exist*.
- c. Valid from the Aristotelian standpoint *on the condition that S's exist*.
- d. Valid from the Boolean standpoint.
- e. Invalid from the Aristotelian standpoint.

**Exhibit 1C**

Given the following proposition:

$$\sim\{[(B \equiv \sim X) \supset Y] \vee [\sim X \supset (A \supset Y)]\}$$

- \_\_\_ 40. Given that A and B are true and X and Y are false, determine the truth value of the proposition in Exhibit 1C:
- a. True.
  - b. False.

**Exhibit 2C**

Given the following proposition:

$$\sim[(A \equiv \sim Y) \bullet (B \supset X)] \bullet [(B \vee \sim X) \bullet (X \equiv A)]$$

- \_\_\_ 41. Given that A and B are true and X and Y are false, determine the truth value of the proposition in Exhibit 2C:
- a. True.
  - b. False.

**Exhibit 4C**

Use an ordinary truth table to answer the following problems. Construct the truth table as per the instructions in the textbook.

Given the following statement:

$$[G \supset (R \bullet N)] \vee [R \supset (G \bullet N)]$$

- \_\_\_ 42. The statement in Exhibit 4C is:
- Tautologous.
  - Contingent.
  - Inconsistent.
  - Self-contradictory.
  - Consistent.

**INSTRUCTIONS:** Use ordinary truth tables to answer the following problems. Construct the truth tables as per the instructions in the textbook.

- \_\_\_ 43. Given the statement:

$$(A \vee \sim S) \bullet (S \bullet \sim A)$$

This statement is:

- Valid.
  - Tautologous.
  - Self-contradictory.
  - Contingent.
  - Inconsistent.
- \_\_\_ 44. Given the pair of statements:

$$Q \equiv N \text{ and } (N \bullet \sim Q) \vee (Q \bullet \sim N)$$

These statements are:

- Contradictory.
  - Logically equivalent.
  - Inconsistent.
  - Consistent.
  - Valid.
- \_\_\_ 45. Given the pair of statements:

$$R \supset \sim B \text{ and } \sim(B \bullet R)$$

These statements are:

- Consistent.
- Inconsistent.
- Valid.
- Contradictory.
- Logically equivalent.

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

- \_\_\_ 46. Given the argument:

$$W \vee \sim S \quad / \quad E \vee \sim A \quad / \quad (K \vee L) \equiv (A \bullet S) \quad // \quad L \supset (E \bullet W)$$

This argument is:

- Invalid.
- Uncogent.

- c. Valid.
- d. Cogent.
- e. Sound.

\_\_\_ 47. Given the argument:

$$C \supset \sim M \quad / \quad I \supset \sim H \quad / \quad (N \bullet I) \vee (G \bullet C) \quad / \quad H \vee M \quad // \quad G \bullet M$$

This argument is:

- a. Uncogent.
- b. Cogent.
- c. Sound.
- d. Invalid.
- e. Valid.

**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.  $\sim H \supset \sim B$

$$\frac{B}{H}$$

- a. MT--valid.
- b. Invalid.
- c. MP--valid.
- d. DS--valid.
- e. DA--invalid.

\_\_\_ 49.  $P \vee G$

$$\frac{(H \supset \sim P) \bullet (C \supset \sim G)}{\sim H \vee \sim C}$$

- a. CD--valid.
- b. Invalid.
- c. MT--valid.
- d. DD--valid.
- e. CD--invalid.

\_\_\_ 50.  $\sim E \vee \sim H$

$$\frac{\sim H}{\sim E}$$

- a. Invalid
- b. CD--valid.
- c. DD--valid.
- d. CD--invalid.
- e. MP--valid.

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

\_\_\_ 51. Given the following premises:

1.  $\sim \sim N$
2.  $K \supset \sim N$
3.  $\sim N \vee (K \bullet S)$

- a.  $(\sim N \vee K) \bullet S$  3, Assoc
- b.  $K$  1, 2, MT
- c.  $N \supset \sim K$  2, Trans
- d.  $K \bullet S$  1, 3, DS
- e.  $(\sim N \bullet K) \vee (\sim N \bullet S)$  3, Dist

52. Given the following premises:

- 1.  $(S \supset R) \supset (J \supset T)$
- 2.  $(P \supset R) \supset (S \supset R)$
- 3.  $R \supset J$

- a.  $(P \supset R) \supset (J \supset T)$  1, 2, HS
- b.  $S \supset J$  1, 3, HS
- c.  $P \supset J$  2, 3, HS
- d.  $(S \supset R) \bullet (P \supset R)$  1, 2, Conj
- e.  $R \supset T$  1, 3, HS

53. Given the following premises:

- 1.  $(F \bullet \sim M) \supset (L \bullet \sim G)$
- 2.  $P \supset L$
- 3.  $\sim(L \bullet \sim G)$

- a.  $\sim(F \bullet \sim M)$  1, 3, MT
- b.  $\sim L$  3, Simp
- c.  $\sim P$  2, 3, MT
- d.  $\sim L \vee G$  3, DM
- e.  $L \supset P$  2, Trans

54. Given the following premises:

- 1.  $\sim N \vee H$
- 2.  $Q \supset \sim(\sim N \vee H)$
- 3.  $(\sim N \supset Q) \bullet (H \supset Q)$

- a.  $Q \supset (N \bullet \sim H)$  2, DM
- b.  $H \supset Q$  3, Simp
- c.  $\sim Q$  1, 2, MT
- d.  $\sim N \supset \sim(\sim N \vee H)$  2, 3, HS
- e.  $Q \vee Q$  1, 3, CD

### Syllogistic Form 3C

Given the following syllogistic form:

All M are P.

No S are M.

All S are P.

55. For Syllogistic Form 3C, the answer from the Boolean standpoint is:

- a. Invalid, illicit minor.
- b. Invalid, drawing an affirmative conclusion from a negative premise.
- c. Invalid, existential fallacy.
- d. Invalid, exclusive premises.

- e. Invalid, drawing a negative conclusion from affirmative premises.

## Problem

**INSTRUCTIONS:** The following problems relate to the counterexample method. (Each part is worth 2 points.)

### 56. PART A

All evangelicals are political conservatives, so some fundamentalists are evangelicals, since some fundamentalists are political conservatives.

Which of the following correctly expresses the form of this argument?

- |   |   |
|---|---|
| <p>a. All P are E.<br/><u>Some P are F.</u><br/>Some F are E.</p> | <p>d. All E are P.<br/><u>Some F are P.</u><br/>Some F are E.</p> |
| <p>b. Some F are P.<br/><u>Some F are E.</u><br/>All E are P.</p> | <p>e. Some F are P.<br/><u>Some F are E.</u><br/>All P are E.</p> |
| <p>c. All E are H.<br/><u>Some F are E.</u><br/>Some F are P.</p> |   |

### PART B

Which of the following substitutions proves the argument invalid?

- a. E = fish, P = mammals, F = animals.
- b. E = dogs, P = animals, F = mammals.
- c. E = dogs, P = animals, F = cats.
- d. E = birds, P = dogs, F = fish.
- e. E = animals, P = cats, F = fish.

**INSTRUCTIONS:** Use natural deduction to derive the conclusion in the following problems. (Each problem is worth 5 points. Do the best you can. I will give partial credit.)

57. Use an ordinary proof (not conditional or indirect proof):

1.  $E \supset (S \supset T)$
2.  $(\sim L \bullet M) \supset (S \bullet E)$
3.  $\sim(T \vee L)$  /  $\sim M$

58. Use an ordinary proof (not conditional or indirect proof):

1.  $A \supset (Q \vee R)$
2.  $(R \bullet Q) \supset B$
3.  $A \bullet \sim B$  /  $R \equiv \sim Q$

**PHI 120-Summer 2009-Final Exam  
Answer Section**

**MULTIPLE CHOICE**

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

42. ANS: B                   PTS: 4  
43. ANS: C                   PTS: 4  
44. ANS: A                   PTS: 4  
45. ANS: E                   PTS: 4  
46. ANS: C                   PTS: 4  
47. ANS: D                   PTS: 4  
48. ANS: A                   PTS: 2  
49. ANS: D                   PTS: 2  
50. ANS: A                   PTS: 2  
51. ANS: D                   PTS: 2  
52. ANS: A                   PTS: 2  
53. ANS: A                   PTS: 2  
54. ANS: E                   PTS: 2  
55. ANS: B                   PTS: 2

### **PROBLEM**

56. ANS:

- A.** d
- B.** c

PTS: 4

57. ANS:

Answer not provided.

PTS: 10

58. ANS:

Answer not provided.

PTS: 10