Exercise 6.3

Part III

1. False
2. True
3. True
4. False
5. True
6. True
7. False
8. False
9. True
10. False
11. True
12. False
13. True
14. True
15. False
16. True
17. True
18. True
19. True
20. False
21. False
22. True
23. True
24. False
25. True

Part IV

1. True
2. Undetermined
3. False
4. Undetermined
5. True
6. True
7. Undetermined
8. False
9. False
10. True
11. False
12. True
13. False
14. True
15. False

Exercise 6.3
Part I

1. Tautologous
2. Contingent
3. Self-contradictory
4. Contingent
5. Self-contradictory
6. Tautologous
7. Tautologous
8. Contingent
9. Contingent
10. Self-contradictory
11. Self-contradictory
12. Tautologous
13. Self-contradictory
14. Tautologous
15. Contingent

Part II

1. Logically equivalent
2. Inconsistent
3. Consistent
4. Contradictory
9. Logically equivalent
10. Inconsistent
11. Contradictory
12. Consistent

5. Logically equivalent
6. Contradictory
7. Consistent
8. Inconsistent
13. Logically equivalent
14. Inconsistent
15. Contradictory

Part III

1. Carlson's prediction is false (self-contradictory).

2. Music is not dropped from the curriculum, and the students will become cultural philistines.

3. Thomas is not correct; the two statements are not logically equivalent.

4. It is possible that both astronomers are correct. If they are, a supernova will not occur within 10 light years of the earth.

5. Martinez's statement is tautologous; therefore, she has told us nothing about taxes, educational costs, or welfare.

6. It is possible that Goodbody is correct in his assessment. If so, Isuzu is not the lowest priced. We cannot conclude anything about Mitsubishi or Toyota.

7. It is possible that both stock brokers are correct. If they are, then Datapro will cut back its work force. We cannot conclude anything about Netmark and Compucel.

8. Eric's beliefs are inconsistent; therefore, they do not make sense.

9. It is possible that all three witnesses told the truth. If so, Lefty did not enter the bank, Howard pulled a gun, and Conrad collected the money.

10. It is possible that Nicole's philosophy makes sense. If it does, then the mind is not identical to the brain, personal freedom exists, and humans are responsible for their actions.

Exercise 6.4
Part I

1. $N \supset S$ / $\sim N \supset \sim S$ (Invalid)
2. B / $B \vee A$ (Valid)
3. $F \supset G$, $G \supset W$ / $F \supset W$ (Valid)
7. $P \vee S$, P / $\sim S$ (Invalid)

Exercise 6.5

4. $D \supset W$
   $\underline{D}$
   W (Valid)

5. $R \supset \sim C$
   $\underline{W \supset \sim C}$
   $R \supset W$ (Invalid)

6. $\underline{D}$
   $P \supset (R \supset P)$ (Valid)

8. $M \supset C$
   $\underline{\sim C \bullet M}$
   S (Valid)

9. $\underline{\sim A \vee \sim M}$
   $\sim(A \vee M)$ (Invalid)

10. $(R \supset Q) \bullet (\sim R \supset P)$
    $\underline{R \vee \sim R}$
    $Q \vee P$ (Valid)

Part II

1. Valid
2. Invalid
3. Valid
4. Valid
5. Invalid
6. Valid
7. Invalid
8. Invalid
9. Valid
10. Invalid
11. Invalid
12. Valid
13. Valid
14. Valid
15. Invalid
16. Invalid
17. Valid
18. Invalid
19. Valid
20. Invalid

Exercise 6.5
Part I

1. Valid
2. Invalid
3. Valid
4. Invalid
5. Valid
6. Invalid
7. Valid
8. Invalid
9. Valid
10. Invalid
11. Valid
12. Valid
13. Valid
14. Invalid
15. Invalid

Part II

1. Inconsistent
2. Consistent
3. Inconsistent
4. Consistent
5. Consistent
6. Inconsistent
7. Inconsistent
8. Consistent
9. Inconsistent
10. Consistent

ercise 6.6
t I

e exercises marked with an asterisk must be rewritten. See below.

MT–valid
HS–valid
Invalid
CD–valid
MP–valid
DS–valid
DD–valid*
AC–invalid
HS–valid
DA–invalid

11. Invalid
12. MP–valid
13. DS–valid*
14. Invalid
15. DD–valid*
16. AC–invalid
17. MT–valid*
18. CD–valid*
19. Invalid
20. DA–invalid*

(E ⊃ N) • (~L ⊃ ~K)
~N ∨ ~~K
~E ∨ ~~L

~S ∨ P
~~S
P

~Q ∨ ~R
(G ⊃ Q) • (H ⊃ R)
~G ∨ ~H

17. K ⊃ ~C
~~C
~K

18. (I ⊃ M) • (~O ⊃ A)
I ∨ ~O
M ∨ A

20. ~L ⊃ U
~~L
~U

t II

F ⊃ T
~T
~F MT–valid

M ⊃ F
F
M AC–valid

(E ⊃ ~M) • (~E ⊃ ~T)
E ∨ ~E
~M ∨ ~T CD–valid

W ∨ ~M
~W
~M DS–valid

5. T ∨ ~D
T
D Invalid

6. S ⊃ E
E ⊃ G
S ⊃ G HS–valid

7. T
T ⊃ ~H
~H MP–valid

8. G ⊃ E
~G
~E DA–invalid