1. $L \supset [M \supset (N \lor O)]$
2. $M \supset \sim N$ / $L \supset (\sim M \lor O)$
    3. L ACP
    4. $M \supset (N \lor O)$ 1, 3, MP
       5. M ACP
       6. $N \lor O$ 4, 5, MP
       7. $\sim N$ 2, 5, MP
       8. O 6, 7, DS
    9. $M \supset O$ 5–8, CP
  10. $\sim M \lor O$ 9, Impl
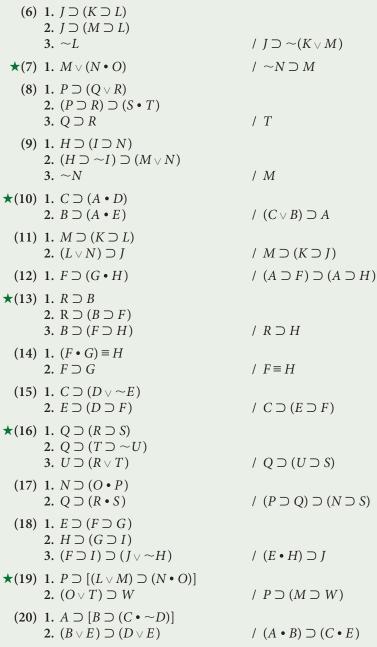11. $L \supset (\sim M \lor O)$ 3–10, CP

The rule introduced in connection with the previous example applies unchanged to examples of this sort. No line in the sequence 5–8 could be used to support any line subsequent to line 9, and no line in the sequence 3–10 could be used to support any line subsequent to line 11. Lines 3 or 4 could, of course, be used to support any line in the sequence 5–8.

One final reminder regarding conditional proof is that every conditional proof must be discharged. It is absolutely improper to end a proof on an indented line. If this rule is ignored, any conclusion one chooses can be derived from any set of premises. The following invalid proof illustrates this mistake:

1. P / $Q \supset R$
   2. $\sim Q$ ACP
   3. $\sim Q \lor R$ 2, Add
   4. $Q \supset R$ 2, Impl

7

EXERCISE **7.5**

I. Use conditional proof and the eighteen rules of inference to derive the conclusions of the following symbolized arguments. Having done so, attempt to derive the conclusions without using conditional proof.

★(1) **1.** $N \supset O$
        2. $N \supset P$ / $N \supset (O \cdot P)$

(2) **1.** $F \supset E$
        2. $(F \cdot E) \supset R$ / $F \supset R$

(3) **1.** $G \supset T$
        2. $(T \lor S) \supset K$ / $G \supset K$

★(4) **1.** $(G \lor H) \supset (S \cdot T)$
        2. $(T \lor U) \supset (C \cdot D)$ / $G \supset C$

(5) **1.** $A \supset \sim(A \lor E)$ / $A \supset F$

(6) **1.** $J \supset (K \supset L)$
2. $J \supset (M \supset L)$
3. $\sim L$ / $J \supset \sim (K \lor M)$

★(7) **1.** $M \lor (N \cdot O)$ / $\sim N \supset M$

(8) **1.** $P \supset (Q \lor R)$
2. $(P \supset R) \supset (S \cdot T)$
3. $Q \supset R$ / T

(9) **1.** $H \supset (I \supset N)$
2. $(H \supset \sim I) \supset (M \lor N)$
3. $\sim N$ / M

★(10) **1.** $C \supset (A \cdot D)$
2. $B \supset (A \cdot E)$ / $(C \lor B) \supset A$

(11) **1.** $M \supset (K \supset L)$
2. $(L \lor N) \supset J$ / $M \supset (K \supset J)$

(12) **1.** $F \supset (G \cdot H)$ / $(A \supset F) \supset (A \supset H)$

★(13) **1.** $R \supset B$
2. $R \supset (B \supset F)$
3. $B \supset (F \supset H)$ / $R \supset H$

(14) **1.** $(F \cdot G) \equiv H$
2. $F \supset G$ / $F \equiv H$

(15) **1.** $C \supset (D \lor \sim E)$
2. $E \supset (D \supset F)$ / $C \supset (E \supset F)$

★(16) **1.** $Q \supset (R \supset S)$
2. $Q \supset (T \supset \sim U)$
3. $U \supset (R \lor T)$ / $Q \supset (U \supset S)$

(17) **1.** $N \supset (O \cdot P)$
2. $Q \supset (R \cdot S)$ / $(P \supset Q) \supset (N \supset S)$

(18) **1.** $E \supset (F \supset G)$
2. $H \supset (G \supset I)$
3. $(F \supset I) \supset (J \lor \sim H)$ / $(E \cdot H) \supset J$

★(19) **1.** $P \supset [(L \lor M) \supset (N \cdot O)]$
2. $(O \lor T) \supset W$ / $P \supset (M \supset W)$

(20) **1.** $A \supset [B \supset (C \cdot \sim D)]$
2. $(B \lor E) \supset (D \lor E)$ / $(A \cdot B) \supset (C \cdot E)$

II. Translate the following arguments into symbolic form, using the letters in the order in which they are listed. Then use conditional proof and the eighteen rules of inference to derive the conclusion of each. Having done so, attempt to derive the conclusion without using conditional proof.

★**1.** If high-tech products are exported to Russia, then domestic industries will benefit. If the Russians can effectively utilize high-tech products, then their standard of living will improve. Therefore, if high-tech products are exported