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PHIL 12

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Exercise Set #1

A)

1. $(P \wedge Q) \wedge W \Rightarrow P$

1	$(P \wedge Q) \wedge W$	P/P
2	$P \wedge Q$	1 \wedge E
3	W	1 \wedge E
4	P	2 \wedge E

2. $P \vee Q, W, R \Rightarrow (W \wedge R)$

1	$P \vee Q$		P
2	W		P
3	R		$P/(W \wedge R)$
4		P	$A/(W \wedge R)$
5		$W \wedge R$	2,3 \wedge I
6			
7		P	$A/(W \wedge R)$
8		$W \wedge R$	2,3 \wedge I
10	$W \wedge R$		1-3, 4-5,7-8 \vee E

3. $M, F, R \Rightarrow (M \wedge R) \wedge R$

1	M		P
2	F		P
3	R		$P/(M \wedge R) \wedge R$
4	$M \wedge R$		2,3 \wedge I
5	$(M \wedge R) \wedge R$		3,4 \wedge I

4. $P \rightarrow Q, S \Rightarrow (P \rightarrow Q) \wedge S$

1	$P \rightarrow Q$	P
2	S	$P/(P \rightarrow Q) \wedge S$
3	$(P \rightarrow Q) \wedge S$	1,2 $\wedge I$

5. $P \rightarrow Q, S \wedge M \Rightarrow (P \rightarrow Q) \wedge M$

1	$P \rightarrow Q$	P
2	$S \wedge M$	$P/(P \rightarrow Q) \wedge M$
3	S	2 $\wedge E$
4	M	2 $\wedge E$
5	$(P \rightarrow Q) \wedge M$	1,4 $\wedge I$

Exercise Set #2

A)

1. $(A \wedge B) \rightarrow C, A, B \Rightarrow C$

1	$(A \wedge B) \rightarrow C$	P
2	A	P
3	B	P/C
4	$A \wedge B$	2,3 $\wedge I$
5	C	1,4 $\rightarrow E$

2. $R \rightarrow (M \rightarrow P), R, M \Rightarrow P$

1	$R \rightarrow (M \rightarrow P)$	P
2	R	P
3	M	P/P
4	$M \rightarrow P$	1,2 $\rightarrow E$
5	P	3,4 $\rightarrow E$

3. $P, Q \Rightarrow P \rightarrow Q$

1	P		P
2	Q		$P/P \rightarrow Q$
3		P	A/Q
4		Q	2R
5	$P \rightarrow Q$		$3,4 \rightarrow I$

4. $A, B, C, [(A \wedge B) \wedge C] \rightarrow D \Rightarrow D$

1	A		P
2	B		P
3	C		P
4	$[(A \wedge B) \wedge C] \rightarrow D$		P/D
5	$A \wedge B$		$1,2 \wedge I$
6	$(A \wedge B) \wedge C$		$3,5 \wedge I$
7	D		$4,6 \rightarrow E$

5. $A, B \Rightarrow C \rightarrow (A \wedge B)$

1	A		P
2	B		$P / C \rightarrow (A \wedge B)$
3		C	$A / A \wedge B$
4		$A \wedge B$	$1, 2 \wedge I$
5	$C \rightarrow (A \wedge B)$		$3, 4 \rightarrow I$