Partial Answer Key Practice Test 1

1.a) If its is Wed. then Paul plays golf. b) If Paul plays golf then it is Wed.
c) If Paul does not play Golf, then it is not Wed. d) If it is not Wed. then Paul does not play golf.

2. d
3. $1001 \wedge 1010 = 1000$ $1001 \oplus 1010 = 0011$
4. Yes (show truth values same in truth table)
5. Yes (show with truth table always true)
8. b
Negation: Some students do not have to take a math course.
9. a

10. Which rule of inference is used in each of the following (See attached sheet).
a) simplification b) hyp. syllogism. c) disj. syllogism

11. c)

12.

Statement	Reason
1. $G \rightarrow I$	1. Hyp
2. $I \rightarrow L$	2. Hyp
3. $\neg L$	3. Hyp
4. $\neg I$	4. Modus Tollens w/ 2, 3
5. $\neg G$	5. Modus Tollens w/ 1, 4

13.

Statement	Reason
1. $\forall x\ J(x) \rightarrow F(x)$	1. Hyp
2. $J(my\ car) \rightarrow F(my\ car)$	2. Univ. Instant. w/ 1
3. $\neg F(mycar)$	3. Hyp
4. $\neg J(mycar)$	4. Modus tollens w/ 2,3

16. a) 3 b) 4

17. a) {2, 4} b) {1, 2, 3, 4, 5, 6, 8} c) {1,3,5,7,9,10} d) {6, 8}

19. {(1,3),(1,4),(1,5),(2,3),(2,4),(2,5)} 20. Done in class.

21. a) False b) True c) True d) {1, 2, 3, 4}
e) {a, b, c, d, e} f) e

22. a) Set of all bit strings b) Nonnegative integers
c) No d) No
23. 3 -4 8 -6