Predicate Logic Translation II Handout

1. All mice are purple. (Mx, Px)
(∀x)(Mx ⊃ Px)

2. No mice are purple.
(∀x)(Mx ⊃ ~Px)

3. Some mice are purple.
(∃x)(Mx · Px)

4. Some mice are not purple.
(∃x)(Mx · ~Px)

5. Snakes are reptiles. (Sx, Rx)
(∀x)(Sx ⊃ Rx)

6. Snakes are not all poisonous. (Sx, Px)
~(∀x)(Sx ⊃ Px) or (∃x)(Sx · ~Px)

7. Children are present. (Cx, Px)
(∃x)(Cx · Px)

8. Executives all have secretaries. (Ex, Sx)
(∀x)(Ex ⊃ Sx)

9. Only executives have secretaries.
(∀x)(Sx ⊃ Ex)

10. All that glitters is not gold. (Gx, Ax)
~(∀x)(Gx ⊃ Ax)

11. Nothing in the house escaped destruction. (Hx, Ex)
(∀x)(Hx ⊃ ~Ex)

12. Blessed is he that considers the poor. (Bx, Cx)
(∀x)(Cx ⊃ Bx)

13. Some students are intelligent and hard working. (Sx, Ix, Hx)
(∃x)[Sx · (Ix · Hx)]

14. He that hates dissembles with his lips, and lays up deceit within him. (Hx, Dx, Lx)
(∀x)[Hx ⊃ (Dx · Lx)]

15. Everything enjoyable is either illegal, immoral, or fattening. (Ex, Lx, Mx, Fx)
(∀x){Ex ⊃ [(~Lx ∨ ~Mx) ∨ Fx]

16. Some medicines are dangerous if taken in excessive amounts. (Mx, Dx, Tx)
(∃x)[Mx · (Tx ⊃ Dx)]

17. Some medicines are dangerous only if taken in excessive amounts.
(∃x)[Mx · (Dx ⊃ Tx)]

18. Victorian houses are attractive (Vx, Hx, Ax)
(∀x)[(Hx · Vx) ⊃ Ax]

19. Slow children are at play. (Sx, Cx, Px)
(∃x)[(Cx · Sx) · Px]

20. Any horse that is gentle has been well-trained. (Hx, Gx, Wx)
(∀x)[(Hx · Gx) ⊃ Wx]

21. Only well-trained horses are gentle.
(∀x)[(Hx · Gx) ⊃ Wx]

22. Only gentle horses have been well-trained.
(∀x)[(Hx · Wx) ⊃ Gx]

23. A knowledgeable, inexpensive mechanic is hard to find. (Kx, Ex, Mx, Hx)
(∀x){[(Kx · ~Ex) · Mx] ⊃ Hx}

24. Dogs and cats chase birds and squirrels. (Dx, Cx, Bx, Sx)
(∀x)[(Dx ∨ Cx) ⊃ (Bx · Sx)]

25. If all survivors are women, then some women are fortunate. (Sx, Wx, Fx)
(∀x)(Sx ⊃ Wx) ⊃ (∃x)(Wx · Fx)

26. Some, but not all, of us got away. (Ux, Gx)
(∃x)(Ux · Gx) · ~(∀x)(Ux ⊃ Gx)

27. If all ripe bananas are yellow, then some yellow things are ripe. (Rx, Bx, Yx)
(∀x)[(Bx · Rx) ⊃ Yx] ⊃ (∃x)(Yx · Rx)

28. If any employees are lazy and some positions have no future, then some employees will not be successful. (Ex, Lx, Px, Fx, Sx)
[(∃x)(Ex · Lx) · (∃x)(Px · ~Fx)] ⊃ (∃x)(Ex ·~Sx)

29. No coat is waterproof unless it has been specially treated. (Cx, Wx, Sx)
(∀x)[Cx ⊃ (~Wx ∨ Sx)]   or   (∀x)[Cx ⊃ (~Sx ⊃ ~Wx)]
or   (∀x)[(Cx · Wx) ⊃ Sx]   or   ~(∃x)(Cx · Wx · ~Sx)

30. A professor is a good lecturer if and only if she is both well-informed and entertaining. (Px, Gx, Wx, Ex)
(∀x){Px ⊃ [Gx ≡ (Wx · Ex)]}