Worksheet Exercise 4.4.B. Name ________________________________

Quantificational Deductions Class _______________ Date ___________

Part B, 1–5. Symbolize the following arguments in the spaces provided, and give deductions for them. Check the symbolization answers at the end.

(1) Everything is either green or red. Chicago is not green, but it is square. So, Chicago is red and square.

1. ________________________ Prem
2. ________________________ Prem

So, ____________________

3. ________________________ ________
4. ________________________ ________
5. ________________________ ________
6. ________________________ ________
7. ________________________ ________
8. ________________________ ________
9. ________________________ ________
10. ________________________ ________

(2) All things are human or matter. All matter is expendable. Data is a non-human machine. So, Data is expendable.

1. ________________________ Prem
2. ________________________ Prem
3. ________________________ Prem

So, ____________________

4. ________________________ ________
5. ________________________ ________
6. ________________________ ________
7. ________________________ ________
8. ________________________ ________
9. ________________________ ________
10. ________________________ ________

(3) All pink horses are rare. All rare horses are expensive. Allegro is a pink horse. So, Allegro is an expensive horse.

1. ________________________ Prem
2. ________________________ Prem
3. ________________________ Prem

So, ___________________

4. ________________________ ________
5. ________________________ ________
6. ________________________ ________
7. ________________________ ________
8. ________________________ ________
9. ________________________ ________
10. ________________________ ________
11. ________________________ ________

(4) Queen Elizabeth is an orator and funny too. All orators have had voice lessons. So, something funny had voice lessons.

1. ________________________ Prem
2. ________________________ Prem

So, ____________________

3. ________________________ ________
4. ________________________ ________
5. ________________________ ________
6. ________________________ ________
7. ________________________ ________
8. ________________________ ________
9. ________________________ ________
10. ________________________ ________
11. ________________________ ________

(5) Some people are smart and funny. All things are made of matter. So, some material things are smart funny persons.

1. ________________________ Prem
2. ________________________ Prem

So, ____________________

3. ________________________ ________
4. ________________________ ________
5. ________________________ ________
6. ________________________ ________
7. ________________________ ________
8. ________________________ ________
9. ________________________ ________
10. ________________________ ________
11. ________________________ ________

Some help: Here is how you symbolize these arguments. Of course, you have to give the deductions too.

(1) $(\forall x)(Gx \vee Rx)$, $\sim Gc \,\&\, Sc$ $/\therefore$ $Rc \,\&\, Sc$

(2) $(\forall x)(Hx \vee Mx)$, $(\forall x)(Mx \supset Ex)$, $\sim Hd \,\&\, Ad$ $/\therefore$ Ed

(3) $(\forall x)[(Px \,\&\, Hx) \supset Rx]$, $(\forall x)[(Rx \,\&\, Hx) \supset Ex]$, $Pa \,\&\, Ha$ $/\therefore$ Ea

(4) $Oe \,\&\, Fe$, $(\forall x)(Ox \supset Vx)$ $/\therefore$ $(\exists x)(Fx \,\&\, Vx)$

(5) $(\exists x)[Px \,\&\, (Sx \,\&\, Fx)]$, $(\forall x)Mx$ $/\therefore$ $(\exists x)[Mx \,\&\, (Sx \,\&\, Fx \,\&\, Px)]$