**LGIC 010 & PHIL 005**
**Problem Set 3**
**Spring Term, 2012**

1. (25 points) How many structures with universe of discourse $\{1, 2\}$ interpreting only the monadic predicate letters "$F$" and "$G$" make true the schema

$$(\forall x)(Fx \vee Gx).$$

2. (25 points) Write down a satisfiable schema involving only the monadic predicate letters "$F$," "$G$" and "H," which is satisfied by no structure with universe of discourse $\{1, 2, 3, 4\}$.

3. (25 points) How many structures with universe of discourse $\{1, \ldots, 10\}$ interpreting only the monadic predicate letters "$F$" and "$G$" make true the schema

$$(\exists x)Fx \equiv (\exists x)Gx.$$

4. (25 points) How many structures with universe of discourse $\{1, \ldots, 10\}$ interpreting only the monadic predicate letters "$F$" and "$G$" make true the schema

$$(\exists x)(Fx \equiv Gx).$$