1. (25 points) How many structures with universe of discourse $\{1, 2, 3, 4, 5\}$ interpreting only the monadic predicate letters "F" and "G" make true the schema

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

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

3. (25 points) How many structures with universe of discourse $\{1, 2, 3, 4, 5\}$ interpreting only the monadic predicate letters "F" and "G" make true the schema

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

4. (25 points) How many structures with universe of discourse $\{1, 2, 3, 4, 5\}$ interpreting only the monadic predicate letters "F" and "G" make true the schema

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