

EECE 4/6273

HW #3

I. 3.1, 3.11, 3.12, 3.19, 3.21, 3.23, 3.24 (Note for problem 3.21: There are 435 congresspersons in the U.S. House of Representatives. States have between one (AK, DE, MT, ND, SD, VT, and WY) and 52 (CA) representatives. Let M represent the number of bills during the 2-year session.).

II. Develop an ER diagram for the experimental forest database (hint: the boldface font suggests entities in the model):

An experimental **forest**, which is identified by its name, has many trees of various species. Data about the forest's size, owning company, and location is to be maintained by the database. A forest is maintained by **foresters**, who are uniquely identified by their SSN. A forester only maintains one forest. Also, the foresters' name, age, and address is to be captured. The experimental forest contains data about each **species**. A species is uniquely identified by its name. In addition, the woodtype and maximum height for the species is maintained. **Trees** in the forest are identified by their tree number. Also, the tree's location and date planted is maintained. The tree's species is also captured. The trees in the experimental forest will be measured several times during the tree's life span, and each **measurement** will have a unique number for a given tree. The measurement result, type, and date is also maintained. Trees can propagate more trees, and the same data must be captured for the *child* trees.

Indicate the primary key for each regular entity set and any partial keys for each weak entity set. Add the minimum and maximum cardinality, indicate all weak entity sets and weak relationship sets. Add roles if needed to the ER.