1. State whether each of the following is *true* or *false*. If *false*, explain why.

(1) Base-class constructors are not inherited by derived classes.

True

(2) An *is-a* relationship is implemented via composition.

False

is-a是一個inheritance的關係

(3) A Student class has an *is-a* relationship with the Faculty and

Course classes.

False

是is-a relationship

(4) Private members of a private base class are inaccessible to the

derived class.

True

(5) A base class’s protected members can be accessed in the base-class

definition, in derived-class definitions and in friends of the base

class and its derived classes.

True

2. Draw an inheritance hierarchy for students at a university. Use Student as

the base class of the hierarchy, then include classes

UndergraduateStudent and GraduateStudent that derive from

Student. Continue to extend the hierarchy as deep (i.e., as many levels) as

possible. For example, Freshman, Sophomore, Junior and Senior

derive from UndergraduateStudent, and DoctoralStudent and

MasterStudent derive from GraduateStudent. After drawing the

hierarchy, discuss the relationships that exist between the classes. (Note: You

don’t need to write any code for this exercise.)

MasterStudent

DoctoralStudent

Freshmant

seniort

juniort

sophomoret

UndergraduateStudent

GraduateStudent

Studentt