1) Consider the following XML document that describes the courses taught by a set of teachers in some subjects for some curricula and the tests that have been passed by the students

```
subject*
    @subjectId
    name
    credits
student*
    curriculum
    test*
        @subjectId
        year
        grade
```

a) For each student and for each year, compute the total amount of credits of the passed tests as follows:

```
student*
    name
    creditsByYear*
        year
        totalCredits
```

b) Return all the pair of students such that the second passed all the tests that have been passed by the first

2) Consider an ontology that describes students tests and courses, with classes Student, Test, Areas, with the following predicates

PassedTest: Student × Test
HasArea: Test × Area
HasGrade: Test × Area

Assume that CS and Math are elements of class Area. Formalize the following assertions, trying not to confuse implications with double implications – when we say that an entry is of category C we mean that C is *one* of the (possibly many) categories of C:

a) If a S passed a test in Area A we say that S PassedExamInArea A
b) If a student S passed some test in CS Area, then S belong to PassedC
c) If a student S only passed test in CS Area, then S belong to OnlyPassedC

Assume to have an RDF graph that contains triples about the four predicates above. Keeping into account the fact that OWL is interpreted according to the Open World approach, is there a possibility that one may prove:

d) That a student belongs to PassedC
e) That a student does not belong to PassedC
f) That a student belongs to OnlyPassedC
g) That a student does not belong to OnlyPassedC