

1. Transform the following sentence into predicate formula with giving your ontology. (5 Points).

- 1) Some students took French in spring 2015.
- 2) Every student who takes French passes it.
- 3) Only one student took Greek in spring 2015.
- 4) All Germans speak the same languages.
- 5) There was a spy who took Greek in spring 2015.

2. Read the following paragraph and answer the questions.

Every man does not hit a woman whom he marries. John and Bill are men and Mary is a woman. Mary marries either John or Bill. Bill hit Mary. Does Mary marries John?

- a) Represent the above sentences into FOL (First Order Logic) formulas with defining your ontology. (4 Points)
- b) In order to give the correct answer, if you need additional knowledge give the additional FOL formulas. And write the question (answer) into FOL formula (2 Points).
- c) Prove the answer is true by the refutation-resolution. (4 Points)