**1.2 Applications of Propositional Logic**

**Q6. Are these system specifications consistent?**

**“Whenever the system software is being upgraded, users cannot access the file system. If users can access the file system, then they can save new files. If users cannot save new files, then the system software is not being upgraded”.**

no it is not consistent.

**Q14. When three professors are seated in a restaurant, the hostess asks them: “Does everyone want coffee?” The first professor says: “I do not know.” The second professor then says: “I do not know.” Finally, the third professor says: “No, not everyone wants coffee.” The hostess comes back and gives coffee to the professors who want it. How did she figure out who wanted coffee?**

**Determine, if possible, what A and B are if they address you in the ways described. If you cannot determine what these two people are, can you draw any conclusions?**

**Both A and B say “I am a knight.”**

We cannot draw conclusions.

**Q24. Construct a combinatorial circuit using inverters, OR gates, and AND gates that produces the output**

**((¬p ∨¬r)∧¬q) ∨ (¬p ∧ (q ∨ r)) from input bits p, q, and r**

**p**

**r**

**q**

**p**

**q**

**r**