1. (3 marks) Consider the following assertions about a particular creature (that happens to be a unicorn):

If the unicorn is mythical then it is immortal. If it is not mythical then it is not immortal and it is a mammal. If it is immortal or a mammal then it has a horn. It is magical only if it has a horn.

We’ll represent this information in propositional logic, with the following symbols:

- $My$ – the creature is mythical
- $Im$ – the creature is immortal
- $Ma$ – the creature is a mammal
- $Ho$ – the creature has a horn
- $Mg$ – the creature is magical

Then each sentence above can be represented as follows:

- $My \Rightarrow Im$
- $\neg My \Rightarrow (\neg Im \land Ma)$
- $(Im \lor Ma) \Rightarrow Ho$
- $Ho \Rightarrow Mg$

(a) Show, using truth tables, whether or not $Ho$ is entailed by the set of formulas, and whether $My$ is entailed. You can use Figure 7.9 in the text as a guide.

(b) Show, using resolution, whether $Mg$ is entailed.
2. (2 marks) Exercise 8.28, parts e – h, page 320, Russell and Norvig.

3. (5 marks) Exercise 10.3, parts a and b, page 396, Russell and Norvig.

As well, state a plan that will get the monkey from position A to a state where it is holding the bananas.