Junhao Zhang “Freddie”

USC ID: XXXX-XXXX-XXXX

CSCI 570 – HW5

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* **[Question 1]**

The consumption of framing word and cabinet wood was:

*Framing word: .*

*Cabinet wood:.*

But due to the shortage, this month would be:

*Framing word: .*

*Cabinet wood: .*

Therefore, let , and denote number of 1st type, 2nd type and 3rd type couches, the constraints would be:

And maximize the profit:

* **[Question 2]**

The consumption of framing word and

* **[Question 3]**

Let denote the Boolean value that indicates whether station *i* uses frequency , and let denote the Boolean value that indicates whether the frequency has been used or not.

Thus, the goal is to:

Minimize

The constraints are:

, with a fixed value of *i*. This constraint ensures one station uses one frequency.

.

and station *i* and *k* are adjacent. This constraint ensures no adjacent stations use same frequency.

* **[Question 4]**

1. False
2. XXX
3. True, because 2-SAT is in P, thus 3-SAT is in P, moreover since 3-SAT is NP-hard, so all NP can be reduced to 3-SAT, which further indicates all NP questions are in P.
4. XXX
5. False. Reduction is not commute.