Instructions:

- Do all the problems listed below and hand in your solutions in class on the due date.
- Fill in and staple the included cover page to the front of your assignment.
- Write legibly and communicate your ideas clearly and precisely. Don’t leave it to us to guess your intentions; we can give points only for what we see on the answer sheet, not for what you may have intended for us to see. At the same time, don’t be verbose; keep your answers concise and to-the-point.
- The work you turn in must be your own (see “Class Policies” in the syllabus).
- It is not possible to cover every type of problem in an assignment, so don’t limit yourselves to the problems given. For practice, you should work out other problems from the text (answers to odd-numbered problems are at the end of the text).
- Above all, have fun! Some of the problems have the flavor of recreational puzzles—and should be just as enjoyable.

Please hand in your answers to the following problems from the Seventh Edition of the Rosen text:

1. (4 points) p. 13, #12 (e), (f) and #14 (e), (f). (The alternative forms of the conditional on p. 6 will be useful for the latter problem.)

2. (3 points) Write the converse, inverse, and contrapositive of the proposition below. (The alternative forms of the conditional on p. 6 will be useful.)

“I go to the beach whenever it is a sunny day.”

3. (5 points) p. 15, #32 (c), (e).

4. (6 points) Suppose that you are marooned on a remote island that is inhabited by two types of people: “knights” who always tell the truth and “knaves” who always lie. You meet three people, A, B, and C. A says “All of us are knaves”, B says nothing, and C says “B is a knight”. Use propositional variables and logical operators to express the statements made by the different people. Then use a truth table to determine a truth value assignment (if one exists) that makes all the statements true.

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5. (6 points) p. 23, #12. Use suitable propositional variables and logical operators to express the various statements made about the system as propositions. Then determine if all propositions can be made true simultaneously. Do not use a truth table; instead reason directly about the truth or falseness of the propositions you generate. Explain your reasoning.

6. (6 points) p. 24, #34. As in problem 5, capture the statements in the problem as propositions. Then determine if all propositions can be made true simultaneously. Do not use a truth table; instead reason directly about the truth or falseness of the propositions you generate. Explain your reasoning.
Homework Cover Page

Please fill in and staple to the front of your homework

Name (print):______________________________

Student ID #:____________________

Homework #:________

Discussion Section registered for (check one):

○ Sec. 11 (4:40–5:30 p.m.)

○ Sec. 12 (5:45–6:35 p.m.)