

56:272 Integer Programming & Network Flows
Quiz #1 – September 3, 2003

Suppose that you are interested in choosing from among a set of investments $\{1, 2, \dots, 6\}$ using 0-1 variables:

$X_i = 1$ if investment i is selected, else 0

Model the following constraints:

1. You cannot invest in all of them.
2. You must choose at least two of them.
3. Investment #1 cannot be chosen if investment #3 is chosen.
4. Investment #2 can be chosen only if investment #6 is also chosen.
5. You must choose either both investments #4 & 6 or else neither.
6. You must choose either at least one of the investments $\{1,2,3\}$ or at least two investments from $\{2,4,5,6\}$.



7. What is INFORMS?
8. In the formulation of the uncapacitated facility location problem with five “depots” (sources) and six “clients” (destinations) the number of binary variables (Y) is ____ and the number of continuous variables (X) is ____ .
9. State one of the set of constraints which link the two sets of variables. (*There are two possible correct answers.*)
10. True/False? _____ In the optimal solution of the uncapacitated facility location problem, the values of all of the continuous variables (X) will also be binary, i.e., either zero or one.