6. Constraint Satisfaction Problems

6.2

1. **CSP Formulation**
   - **Variables**: K1, K2,...., Kk (each represents one knight).
   - **Domains**: All board squares {(r,c) | 1 <- r, c <- n }.
   - **Constraints**: No two knights occupy squares that attack each other (knight's move away).

2. **Possible Values of Each Variable**

   • Any of the n^2 squares, provided it does not conflict with another knight's square.

3. **Constrained Sets of Variables**

   • Every pair (Ki, Kj) must satisfy "not attacking" if both are placed.

4. **Maximizing Number of Knights (Local Search)**

   - **Actions**: Move a knight to a different square, add a knight (if free of conflicts), or remove a conflicting knight.
   - **Result**: New board configuration.
   - **Objective Function**: Maximize the number of knights placed without attacks.