Math 22 Final Exam study guide Winter 2009

22 multiple choice questions

3 "show your work" questions

Multiple choice questions, use brown half-page scantron for answers:

- (1) Calculation of number of elements of small sets, involving intersection, union, complement
- (2) Permutation calculation
- (3) Combination calculation
- (4) Ordered arrangements with repetition
- (5) Counting calculation, to be determined
- (6) Unordered selection with repetition
- (7) Graph isomorphism, graph complement
- (8) Hamiltonian cycle and Euler circuit
- (9) Binomial theorem expansion
- (10) Calculation with binomial coefficients
- (11) Universal/existential quantifier problem
- (12) Truth table problem
- (13) Prufer code problem
- (14) Minimal or maximal spanning tree problem
- (15) Coloring number problem
- (16) One-to-one and onto functions
- (17) Matrix code problem
- (18) Binary tree traversal
- (19) Linear recursion
- (20) Adjacency matrix problem
- (21) Solve a linear congruence
- (22) RSA code problem

Show your work problems:

- (23) Express a GCD as linear combination, using the Euclidean algorithm
- (24) Pigeonhole principle
- (25) Induction proof