1. A purchasing clerk wants to order supplies from one of the four possible vendors, which are numbered 1, 2, 3, and 4. The supplies offered by all four vendors are equal with respect to quality and price, so the clerk writes each number on a piece of paper of same size and shape, mixes the papers, and blindly selects two numbers. Let E denote the event that at least one odd numbered vendor is selected and F denote the event that at least one even numbered vendor is selected. Compute the probability of E $\cap$ F, i.e., P(EF).

(12 pts)

2. Four employees of a firm are ranked from 1 to 4 in their abilities to program a computer. Two of these employees are selected to fill equivalent programming jobs. If all possible choices of two (out of the four) are equally likely, find the probability that the employee ranked 4 is selected.

(8 pts)

Formulas: $\dbinom{n}{r} = \dfrac{n!}{r!(n-r)!}$ $P_r^n = n(n-1)\cdots(n-r+1) = \dfrac{n!}{r!(n-r)!}$