EE 381 Quiz 2 – Practice

Name, I.D. #, and Date: _____

Instructions: Instructions: No electronics other than a calculator. Show your work for credit. Put your answer on the line provided.

1.) In a statistics class there are 12 students. Five of the students are seniors and the rest are juniors. Four students are randomly chosen at the same time from the students in the class to lead four study groups of three students each. What is the probability that the sample of four contains an equal number of seniors and juniors?

2.) The probability of a person being born with six fingers (polydactyly) is one in five-hundred. If two unrelated people are selected at random what is the probability they were both born with polydactyly?

3.) The probability a random person has covid-19 is one in ten-thousand. A test for it is 93% accurate but gives a false positive with a probability of 4%. If a random person test positive for covid-19 what is the true probability they have it?

Formulas

$P(\{A\} \cup \{B\}) = P(\{A\}) + P(\{B\}) - P(\{A\} \cap \{B\})$ $P(\{A\} \cap \{B\}) = P(\{A\})P(\{B\}|\{A\})$

$P(\{X = x\}) = \frac{{}_{X}C_{x}\ {}_{N-X}C_{n-x}}{{}_{N}C_{n}}$ ${}_{n}C_{r} = \frac{n!}{(n-r)!r!}$ $P(\{A\} \cap \{B\}) = P(\{A\})P(\{B\})$