

ECE 341 - Homework #2

Combinatorics & Conditional Probability

Note on Homework Solutions

Please include your Matlab code and/or hand calculations with all homework solutions. If you just submit your answers, I can't tell if you solve these problems or if you had ChatGPT solve them for you. (zero points on tests for using ChatGPT - not allowed)

Combinatorics

In 7-card stud poker, each player is dealt 7 cards. The best 5 cards constitutes your hand. Determine using combinatorics the odds of being dealt in 7-card stud:

- 1) 4-of-a-kind: (xxxx aaa) or (xxxx aa b) or (xxxx abc)
- 2) Full-House (xxx yyy a) or (xxx yy aa) or (xxx yy ab)
- 3) Flush (5, 6, or 7 cards of the same suit)

note: Your answers should match up with homework set #1

Conditional Probability

- 4) In a game of dice, you roll three 6-sided dice (3d6). Determine the odds of getting in one roll:
 - 3-of-a-kind (xxx)
 - Pair (xx y)
 - No pairs (xyz)
- 5) Using conditional probabilities, determine the odds of getting 3-of-a-kind in two rolls:
 - If you rolled 3-of-a-kind on the first roll, stop.
 - If you rolled a pair (xx y), re-roll the y
 - If you rolled no pairs (xyz), re-roll y and z
- 6) Determine the odds of getting a flush in 5-card draw poker:
 - If you are dealt 5 cards of the same suit, stop (you have a flush)
 - If you are dealt 4 cards of the same suit, discard the off card and draw one
 - If you are dealt a high-card hand, keep the one card whose suit doesn't match any others and draw 4.