Chapter 17 Homework Solutions

1)  | 1st  | 2nd  | 3rd  | bid list | two possible divisions:
    |      |      |      |         | A gets 2nd
    | B    | .2   | .4   | .4      | B gets 3rd
    | C    | .5   | .2   | .3      | C gets 1st
    | A    | 1/3  | 1/3  | 1/3     | all

2)  | 1st  | 2nd  | 3rd  | bid list | only one possible division:
    |      |      |      |         | A gets 3rd
    | B    | .5   | .2   | .3      | B gets 1st
    | C    | .3   | .4   | .3      | C gets 2nd
    | A    | 1/3  | 1/3  | 1/3     | all

3)  | 1st  | 2nd  | 3rd  | bid list | two possible divisions
    |      |      |      |         | A gets 2nd
    | B    | .5   | .2   | .3      | B & C recombine 1st + 3rd
    | C    | .4   | .3   | .3      | do I cut you choose
    | A    | 1/3  | 1/3  | 1/3     | or

4) Each player must identify at least one piece as fair, since if $S_1$ and $S_2$ are
   each worth $< 1/3$, then $S_3 > 1/3$. Since $S_1 + S_2 + S_3 = 1$, $< 2/3 < 1/3$

5) Suppose $S_i < 1/3$ to both B and C. The portion that remains is $S_2 + S_3$.
   Since $S_1 + S_2 + S_3 = 1$, if $S_i < 1/3$, then $S_2 + S_3 > 2/3$.

and from Chapter 19, p.141:
1) bids are: A - all B - b, d, C - b, c, d, D - b
2) bids are: A - all B - b C - b D - abc
3) bids are: A - all B - b, c C - b D - bc
   one possibility: give d to A
   B, c, d remain a, b, c to do Steinhaus

and from Chapter 19, p.141:
1) give d to D
d to B
c to C
a to A
   one possibility: give c to D
d to A
B & C recombine a and b to do I cut you choose