

COMP323 - Introduction to Computational Game Theory

Tutorial 6 - Questions

Problem 1. Consider a single item **1st price** sealed-bid auction where 4 players have valuations for the item: $v_1 = 8$, $v_2 = 6$, $v_3 = 2$ and $v_4 = 1$. You are given the following action profiles:

(a) $(b_1, b_2, b_3, b_4) = (8, 6, 2, 1)$,

(b) $(b_1, b_2, b_3, b_4) = (8, 0, 0, 0)$,

(c) $(b_1, b_2, b_3, b_4) = (5, 4, 5, 1)$,

(d) $(b_1, b_2, b_3, b_4) = (6, 4, 1, 6)$.

Which of the above are Nash equilibria? Justify your answer.

Problem 2. Consider a single item auctioned in a **2nd price** sealed-bid auction, with 4 players and the same valuations as in Problem 1. You are given the action profiles of Problem 1. Which of these profiles are Nash equilibria? Justify your answer.