1. Find a mixed strategy Nash equilibrium for the following game:

\[
\begin{array}{c|cc}
 & L & R \\
\hline
T & 2, 1 & 0, 2 \\
B & 1, 2 & 3, 0 \\
\end{array}
\]

2. Consider the following two players’ normal form game (players are allowed to play mixed strategies):

\[
\begin{bmatrix}
1, 2 & L & M & R \\
A & 2, 12 & 0, 0 & 5, 5 \\
B & 0, 0 & -4, 4 & 200, 1 \\
C & 1, 2000 & -1, 1000 & 3, 100 \\
D & 3, -1 & -3, 7 & 747, 2 \\
\end{bmatrix}
\]

(a) What are the strategies that survive iterated elimination of strictly dominated strategies.

(b) Find a Nash equilibrium of this game.

3. Consider the following extensive form game:

\[
\begin{array}{c|cc}
L & R \\
\hline
4 & -10 \\
\hline
\end{array}
\]

Write down the game in normal form and find the pure strategy Nash equilibria of this game.

4. Consider a population of voters uniformly distributed along the ideological spectrum from left \((x = 0)\) to right \((x = 1)\). Each of the candidates for a single office simultaneously chooses a campaign platform (i.e., a point in the
interval \([0, 1]\)). The voters observe the candidates’ choices, and then each voter votes for the candidate whose platform is closest to the voter’s position on the spectrum. The candidate with the highest number of votes wins (if there is a tie between some candidates, then each of them may be declared winner with equal probability). Suppose that the candidates care only about being elected i.e., maximize the probability of being elected (they do not care about their platforms at all). If there are two candidates, what is the pure strategy Nash equilibrium? If there are three candidates, exhibit a pure strategy Nash equilibrium.

5. Consider the following extensive form with three players:

Can you identify a subgame perfect Nash equilibrium? Explain clearly.

6. Consider the following extensive form game:

What are the subgame perfect equilibria of this game?