Consider the following situation of two-sided incomplete information:

Where $G_1$ and $G_2$ are the following simultaneous games:

\[
\begin{array}{c|cc}
 & L & R \\
\hline
T & 1,0 & 0,2 \\
B & 0,4 & 2,1 \\
\end{array}
\]

\[
\begin{array}{c|cc}
 & L & R \\
\hline
T & 0,0 & 3,2 \\
B & 2,4 & 0,1 \\
\end{array}
\]

(a) Find a mixed-strategy Nash equilibrium of game $G_1$.

(b) The beliefs of the two players are Harsanyi consistent. Write a set of equations whose solution gives the common prior.

(c) Apply the Harsanyi transformation to transform the above situation of incomplete information into an extensive form game. [Make Player 1 move before Player 2.]

(d) What are the expected payoffs of the players when Player 1 always plays $T$ and Player 2 always plays $R$?