1. (a) Neither Player 1 nor Player 3 have a strictly dominated strategy. For Player 2, C is strictly dominated by D.

(b) At a Nash equilibrium no strictly dominated strategy can be played with positive probability; thus Player 2 must play D. Hence the game can be simplified to the following two-player game:

\[
\begin{array}{c|cc}
 & E & F \\
\hline
A & 2, 0 & 0, 1 \\
B & 0, 3 & 4, 0 \\
\end{array}
\]

This game has no pure-strategy Nash equilibria. To find the mixed-strategy Nash equilibrium, let \( p \) be the probability of A and \( q \) the probability of E. Then \( p \) and \( q \) must be the solutions to: \( 2q = 4(1 - q) \) and \( 3(1 - p) = p \). The solutions are \( p = \frac{3}{4} \) and \( q = \frac{1}{3} \). Thus the Nash equilibrium of the original games is \( \left( \frac{3}{4}, \frac{1}{3} \right) \). Player 1’s expected payoff is \( \frac{3}{4} \), Player 2’s expected payoff is \( \frac{5}{3} \) and Player 3’s expected payoff is \( \frac{0.75}{4} = 0.75 \).

(c) The extensive game is as follows (this is just one of many possible representations: the order of moves in the proper subgame can be changed):

![Extensive Game Diagram]
2. (a) Only the one that starts at Player 3’s node after choice F. (b) One. (c) $2^3 = 8$. (d) For example, DFM. (e) $2^2 = 4$. (f) For example, GK

3. (a) Eight. (b) For example, EK. (c) First solve the subgame on the left:

\[
\begin{array}{|c|c|}
\hline
& E & F \\
\hline
C & 5 & 0 \\
D & 1 & 1 \\
\hline
\end{array}
\]

There is a unique Nash equilibrium: (D,F). Now the subgame on the right:

\[
\begin{array}{|c|c|}
\hline
& K & L \\
\hline
G & 2 & 2 \\
H & 0 & 3 \\
\hline
\end{array}
\]

There is a unique Nash equilibrium: (G,K).

Thus there are two subgame-perfect equilibria: (ADG,FK) and (BDG,FK).