1. (2,2,2) is the only Nash equilibrium.

2. Every strategy profile is a Nash equilibrium except: (✓,✓,✓) and (no check, no check, no check).

3. Recall that $n \geq 2$ and that a player can win only if he bids a positive amount. Let $(x_1, \ldots, x_n)$ be the bids. Let $x_i$ be a highest bid, that is, $x_i \geq x$ for all $x \in \{x_1, \ldots, x_n\}$.

   - If $x_i > 0$, it cannot be that $x_i = x_j$ for some $j \neq i$ (nobody wins and $i$ and $j$ have to pay a positive amount). Thus $x_j < x_i$ for all $j \neq i$; if there is a $j \neq i$ such that $0 < x_j < x_i$ then it is not a Nash equilibrium (player $j$ would do better by reducing his bid to zero). Thus it must be $x_j = 0$ for every $j \neq i$. But then in order for this to be a Nash equilibrium $x_i$ must be the smallest possible amount, that is, $\$1$ (otherwise player $i$ can increase his payoff by reducing his bid). But the situation where $x_i$ is equal to $\$1$ and $x_j = 0$ for every $j \neq i$ is not a Nash equilibrium because a player $j \neq i$ can increase his payoff by bidding $\$2$.

   - If, on the other hand, $x_i = 0$, then any player can increase his payoff by bidding $\$1$.

Thus there are no pure-strategy Nash equilibria.

4. (a)-(b) Neither player has a dominant strategy.

   (c) $X_4$ is (weakly) dominated by $X_2$. After $X_4$ has been deleted, $Y_4$ is (weakly) dominated by $Y_3$ and $Y_2$ is (weakly) dominated by $Y_1$. After $Y_2$ and $Y_4$ have been eliminated $X_2$ becomes (strictly) dominated by $X_3$. After deletion of $X_2$, $Y_3$ becomes dominated. After $Y_3$ is deleted, $X_3$ becomes dominated. Hence there is a unique iterated dominant strategy equilibrium given by $(X_1, Y_1)$ with payoffs $(3,1)$.

5. There are 3 Nash equilibria: one where everybody accepts, one where everybody rejects and one where everybody abstains.
6.

(a) Yes, any $x > 8$ (and only those values of $x$). The strategy is C.

(b) No, because if player 1 plays C the payoff of player 3 is the same (namely 8) no matter what strategy player 3 chooses.

(c) Yes $(G,D)$ is weakly dominated by $(F,D)$ and $(G,E)$ is weakly dominated by $(F,E)$.

(d) For $y \neq 2$ (and only those values of $y$): if $y < 2$ then $H$ weakly dominates $L$ and if $y > 2$ then $L$ weakly dominates $H$.

(e) Four: $(F,D)$, $(F,E)$, $(G,D)$ and $(G,E)$.

(f) One solution is $(C, (F,E), L)$ and the other is $(A, (F,D), H)$.

(g) $(C, (F,E), L)$.

(h) Because it is not a strategy profile.

(i) Again, because it is not a strategy profile.

(j) Yes: $(C,(F,E),H)$ and also $(C,(F,E),L)$ and $(C,(F,D),L)$. 