

⑧ $P_1 \rightarrow 1$ $P_2 \rightarrow 2$ $P_3 \rightarrow 5$ $P_4 \rightarrow 10$

4 bit to represent 4 persons. ($P_1 P_2 P_3 P_4$)

bit $\rightarrow 1$ means P -th person doesn't cross the bridge

bit $\rightarrow 0$ means P -th person crossed the bridge

Time: $1111 \rightarrow 0011 \rightarrow 1011 \rightarrow 1000 \rightarrow 1100 \rightarrow 0000$
 0 2 3 13 15 17

Yes, they can cross the bridge in 17 minutes.

