

### 第三章习题

$$1. (1) T_{\text{pipe}} = 2 + 0.1 \text{ ns} = 2.1 \text{ ns}$$

$$(2) S = \frac{T_{\text{pipe}}}{T_{\text{cycle}}} \times \frac{\text{CPI}_{\text{pipe}}}{\text{CPI}_{\text{cycle}}} \approx \frac{2.1}{7} \times 1 = 0.3$$

$$\text{加速比 } \alpha = \frac{1}{S} = \frac{10}{3}$$

$$(3) \lim_{k \rightarrow +\infty} T_{\text{pipe}} = T_{\text{req}} = 0.1 \text{ ns}$$

$$\lim_{k \rightarrow +\infty} S = \frac{0.1}{7} = \frac{1}{70}$$

$$\therefore \text{加速比极限 } \lim_{k \rightarrow +\infty} \alpha = 70$$