

3.1

$$1) \quad \cancel{1+5+1+2+1+5+0+1+4} = 7.48 \quad T = 2 + 0.1 = 2.1 \text{ ns}$$

$$2) \quad S = \text{CPI} \cdot \frac{T_{\text{new}}}{T_0}$$

$$= \frac{17+4}{17} \cdot \frac{2.1}{7} = \frac{31+4}{10 \cdot 17} \quad \begin{matrix} \text{指令} \\ n \text{ 为周期数} \end{matrix} \quad n \rightarrow \text{Overall} = 33.3\%$$

$$3) \quad S = \text{CPI} \cdot \frac{T_{\text{new}}}{T_{\text{old}}}$$

$$= \frac{N+K+1}{N} \cdot \frac{7+0.1}{7}$$

$$N \gg K$$

$$\Rightarrow S = 1 \cdot \frac{7+0.1}{7}$$

$$K \rightarrow 0$$

$$\Rightarrow S = \frac{2.1}{7}$$

$$\Rightarrow \text{Overall} = 70$$

