

⑥ $i = 0 \rightarrow 1 \text{ op.}$

$i < 10$ last iteration $\rightarrow 1 \text{ op.}$

$i < 10, i++ \rightarrow 10 \times 2 \text{ ops.}$

$\text{for}(j=1; j < n; j = j * 2) \rightarrow 1 + 2 \cdot \log n + 1.$

$\text{if}(\text{arr}[j] < 1) \quad \left. \begin{array}{l} \text{cout} << \text{arr}[j]; \end{array} \right\} 2 \cdot \log n.$

$\rightarrow T(n) = 1 + 1 + 10(2 + 1 + 2 \cdot \log n + 2 \log n) + 1$

$\rightarrow T(n) = 3 + 30 + 40 \log n$

$\Rightarrow O(T(n)) = O(\log n).$

Page 4

⑦. The first for-loop :

$1 + 1 + n(2 + 1) = 3n + 2.$

The second for-loop :

$n(1 + \frac{1}{2}) = n + \frac{n}{2}$

$\rightarrow T(n) = 3n + 2 + n + \frac{n}{2} = 4n + \frac{n}{2} + 2$

$\Rightarrow O(T(n)) = O(n)$