

ICS作业1答案

邢添珵 2024202862

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Binary	Octal	Decimal	Hexadecimal
101 0101 0110	2526	1366	0x556
0001 1111 1111	777	511	0x1ff
0001 1100 0101	705	453	0x1C5
0111 1101 1111	3737	2015	0x7df
0100 0000 1101	2015	1037	0x40d

2

(a) 0x3a

(b) 0xff

(c) 0xc5

(d) 0xc5

(e) 1

(f) 1

3

(a) $!(\sim x)$

(b) $\neg x$

(c) $!((x \& 0xff) \wedge 0xff)$

(d) $!(x \& 0xff)$

4

$(x \& 0xffff) \mid (y \& \sim 0xffff)$

附：

$$1. (A) \quad \begin{array}{r} 101 \\ 0101 \\ \hline 5 \end{array} \quad \begin{array}{r} 0110 \\ \hline 5 \end{array} \quad \begin{array}{r} 6 \\ \hline \end{array} \quad \rightarrow 0x556 \rightarrow 5 \times 16^2 + 5 \times 16 + 6 = 1366$$

$$1366 \div 8 = 170 \dots 6, \quad 170 \div 8 = 21 \dots 2, \quad 21 \div 8 = 2 \dots 5 \rightarrow 25268$$

$$(6) 7 \times 8^2 + 7 \times 8 + 7 = 511, 511 \div 2 = 255 \cdots 1, 255 \div 2 = 127 \cdots 1.$$

$$127 \div 2 = 63 \dots 1, \quad 63 \div 2 = 31 \dots 1, \quad 31 \div 2 = 15 \dots 1, \quad 15 \div 2 = 7 \dots 1, \quad 7 \div 2 = 3 \dots 1$$

$$3 \div 2 = 1 \dots 1 \Rightarrow \underline{\underline{0001}} \quad \underline{\underline{111}} \quad (\underline{\underline{111}} \rightarrow 0x1ff)$$

$$\text{(d)} \quad 2015 \div 2 = 100\text{...}1, \quad 100 \div 2 = 50\text{...}0, \quad 50 \div 2 = 25\text{...}0, \quad 25 \div 2 = 12\text{...}1$$

$$125 \div 2 = 62 \dots 1, \quad 62 \div 2 = 31 \dots 1, \quad 31 \div 2 = 15 \dots 1, \quad 15 \div 2 = 7 \dots 1, \quad 7 \div 2 = 3 \dots 1$$

$$3+2=1\cdots 1 \quad , \quad (\Rightarrow \underline{\underline{0111}} \underline{\cancel{101}} \underline{111} \rightarrow 0 \times 7df \rightarrow 373)$$

$$(c) \text{ } 0x105 \Rightarrow 5 + 12 \times 16 + 1 \times 16^2 = 453_{10} \quad 453 \div 10 = 56 \text{ R } 3, \quad 56 \div 8 = 7 \Rightarrow 705_8$$

0001 100 010

$$103_{10} = 1 \times 8^0 + 4 \times 8^1 + 2 \times 8^2 + 5 \times 8^3 = 103_8$$

$\rightarrow 0 \times 40d$

$$2. \quad 0x7f = 0\underline{111} \underline{1111}_2 \quad 0xba = 1011 \underline{1010}_2$$

$$A \& B = 0011 \quad 1010_2 = 0x3a \quad A | B = 1111 \quad 1111_2 = 0xff$$

$$A^T B = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix} = 0xC5$$

$$\sim A \mid \sim B = 1100\ 0101 = 0x c5$$

$$\underline{3. (a) \quad 11 - 1 \quad \sim x = 00 - 0 \quad \rightarrow !(\sim x)}$$

$$(b) \quad 000--0 \rightarrow !x$$

(c) 取后16位 $\times \& 0\text{xffff}$ 判断是否 == 0xffff

(d) 聚后 16 位，是否为 0 $\Rightarrow !(x \& 0xffff)$

$$\rightarrow ! (x^{\wedge} y)$$

$$4. \quad x \text{ 取后 } 16 \text{ 位} \quad x \& 0xffff \quad y \text{ 取前 } 16 \text{ 位} \quad .y \& \sim 0xffff \Rightarrow \begin{cases} (x \& 0xffff) | (y \& \sim 0xffff) \\ 0x0 \end{cases}$$