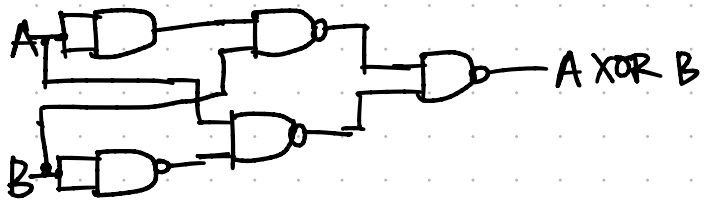
PB21111710 赵瑞冬 HW1

T1.

A	B	$\overline{A+B}$	$\bar{A}\cdot\bar{B}$
0	0	1	1
0	1	0	0
1	0	0	0
1	1	0	0

A	B	$\overline{A\cdot B}$	$\bar{A}+\bar{B}$
0	0	1	1
0	1	1	1
1	0	1	1
1	1	0	0

$$A \text{ XOR } B = A\bar{B} + \bar{A}B$$
$$= \overline{\overline{A\bar{B} + \bar{A}B}}$$
$$= \overline{\overline{A\bar{B}} \cdot \overline{\bar{A}B}}$$



T2. (1) $(10100)_2 = (29)_{16}$

$(52)_8 = (101010)_2 = (2A)_{16}$

$(00101001)_{BCD} = (29)_{10} = (1D)_{16}$

$(33)_{16}$

$\therefore (00101001)_{BCD} < (52)_8 < (101001)_2 < (33)_{16}$

T3. (1) ALU: 对AB进行运算:

ADD. AND. PASS A. NOT

REG FILE: 读取 SR1, SR2. 存储/读取 DR

MUX: 数据选择器

MEMORY: 存储单元, 地址+数据

(2) CPU → ALU . MUX

内存 → REG . MEMORY

(3) 输入: 键鼠 . mic .

输出: audio. picture.

T4.

```
always @(negedge clk)
begin
    if(reset)
        begin
            q <= 0x12;
        end
    else
        begin
            q <= d;
        end
end
```