

第一章课后作业

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8.(3)

$$\begin{aligned}\text{解: 原式} &= ABC + ABD + BCD + B\bar{C} \\ &= B(AC + AD + CD + \bar{C}) \\ &= B(A + \bar{C} + AD + CD) \\ &= B(A + \bar{C} + \bar{D}) \\ &= AB + B\bar{C} + B\bar{D}\end{aligned}$$

10.(2)

解:

CD \ AB	00	01	11	10
00	0	1	3	2
01	4	5	7	6
11	12	13	15	14
10	8	9	11	10

$\therefore F = A\bar{C}\bar{D} + A\bar{C}D + A\bar{B}D$
 $= A\bar{C}\bar{D} + A\bar{C}D + A\bar{B}$
 $= A\bar{D} + A\bar{B}$

11.(3)

Verilog 代码:

```
module test1(  
    input A,  
    input B,  
    input C,  
    input D,  
    output F  
);  
  
    wire notA, notB, notC, notD, ans1, ans2, ans3, ans4;  
  
    nand(notA, A, A);  
    nand(notB, B, B);  
    nand(notC, C, C);  
    nand(notD, D, D);  
  
    nand(ans1, notA, notB, notC);
```

```

nand(ans2, notA, B, notD);
nand(ans3, notB, C, notD);
nand(ans4, A, B, C);

```

```

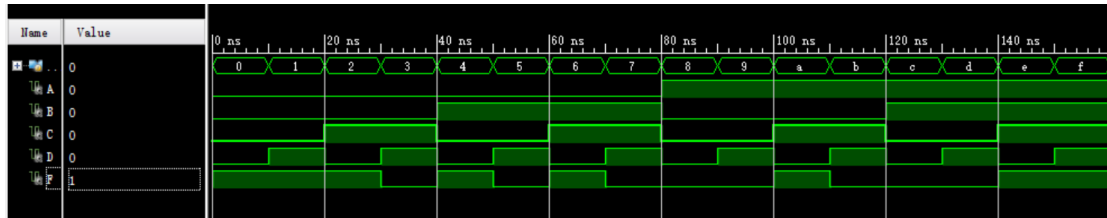
nand(F, ans1, ans2, ans3, ans4);

```

```

endmodule

```



逻辑图：

