

MOD-10  
SLIDE 5

BCD

$$45_{10} = \underbrace{0100}_4 \underbrace{0101}_5 \text{ in BCD}$$

$$45_{10} = (101101)_2$$

$$W = a\bar{b}\bar{c}\bar{d} + \bar{a}bcd$$

3 AND

3 INV

3 AND

1 INV

1 OR

with don't care

$$W = a\bar{d} + bcd$$

3 AND

1 INV, 1 OR

MOD 12  
SLIDE 13

$$45_{10} = \underline{(101101)}_2$$

$$\underbrace{101}_2 \underbrace{101}_2 = 55_8$$

$$\underbrace{0010}_2 \underbrace{1101}_2 = 2D_{16}$$

$$\begin{aligned} 55_8 &= 5 \times 8^1 + 5 \times 8^0 \\ &= 40 + 5 \end{aligned}$$

$$\begin{aligned} 2D_{16} &= 2 \times 16^1 + 13 \times 16^0 \\ &= 40 + 5 \end{aligned}$$

$$101010_2$$

$$52_8$$

$$\underbrace{101}_2 \underbrace{010}_{A_{16}}$$

$$5 \times 8 + 2 = 42$$

$$2 \times 16 + 10 = 42$$