數位邏輯設計 Ch1 HW

注意事項：請寫出詳細計算與分析過程，不可以只寫答案!

Problems:

1.3   Calculate the decimal values of each of the following binary numbers:

    a. 100

    b. 1000

    c. 11001

    d. 110

    e. 10101

1.8   Convert the following decimal numbers to binary. Use the sum-of-powers-of-2 method for parts a,   Use the repeated-division-by-2 method for parts b

    a. 75_{10} **b.** 83_{10}

1.10   Convert the following fractional binary numbers to their decimal equivalents.

    a. 0.01

    b. 0.0101

1.13   Convert the following decimal numbers to their binary equivalents. If a number has an integer part larger than 0, calculate the integer and fractional parts separately.

    a. 0.75_{10}

    b. 0.625_{10}

1.16   Convert the following hexadecimal numbers to their decimal equivalents.

    a. 1A0H

    b. 10AH

    c. FFFH

    d. 1000H

1.18   Convert the following hexadecimal numbers to their binary equivalents.

    a. F3C8H

    b. D3B4H

1.19   Convert the following binary numbers to their hexadecimal equivalents.

    a. 101111010000110_2

    b. 101101101010_2

1.20   Calculate the time LOW, time HIGH, period, frequency, and percent duty cycle for the waveforms shown in Figure 1.12. How are the waveforms similar? How do they differ?
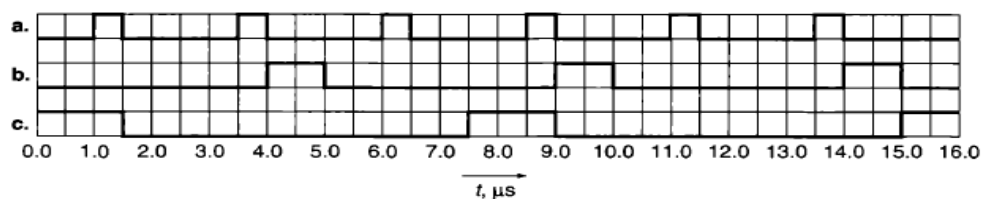

FIGURE 1.12   Problem 1.20: Periodic Waveforms

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1.24 For each of the periodic waveforms shown in Figure 1.15, calculate the period, frequency, time HIGH, time LOW and percent duty cycle. (The time scale is shown in nanoseconds; 1 ns = 10^{-9} seconds.)
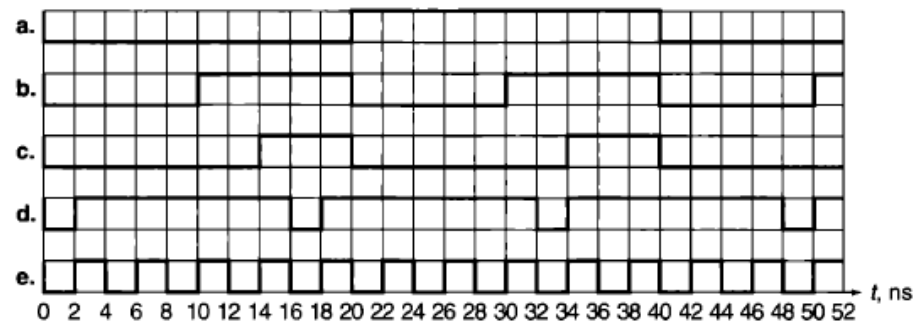

FIGURE 1.15 Problem 1.24: Periodic Waveforms

1.25 Calculate the pulse width, rise time, and fall time of the pulse shown in Figure 1.16
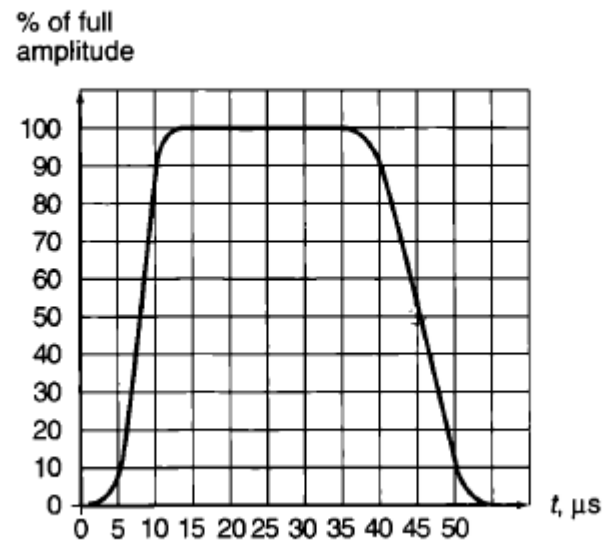

FIGURE 1.16 Problem 1.25: Pulse