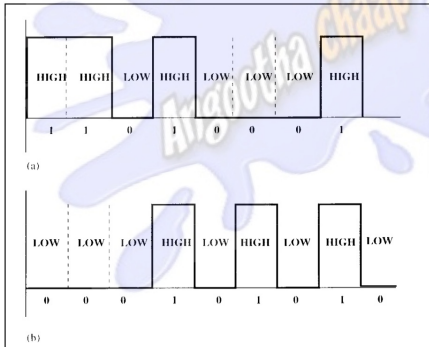
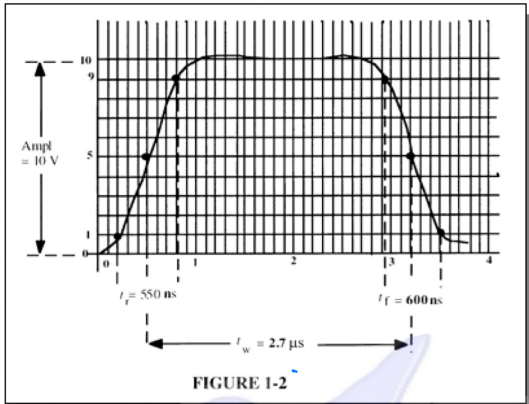


CHAPTER 1

1. Digital data can be transmitted and stored more efficiently and reliably than analog data. Also, digital circuits are simpler to implement and there is a greater immunity to noisy environments.
5. HIGH = 1; LOW = 0. See Figure 1-1.



7. See Figure 1-2.



11. $t_w = 2 \text{ ms}$; $T = 4 \text{ ms}$
 $\% \text{ duty cycle} = \left(\frac{t_w}{T} \right) 100 = \left(\frac{2 \text{ ms}}{4 \text{ ms}} \right) 100 = 50\%$

13. Each bit time = $1 \mu\text{s}$
 Serial transfer time = $(8 \text{ bits})(1 \mu\text{s/bit}) = 8 \mu\text{s}$

Parallel transfer time = 1 bit time = $1 \mu\text{s}$

$$14. \quad T = \frac{1}{f} = \frac{1}{3.5 \text{ GHz}} = 0.286 \text{ ns}$$

17. See Figure 1-8.

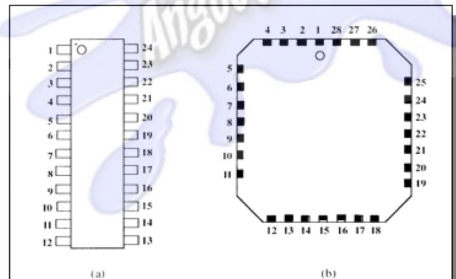


FIGURE 1-8