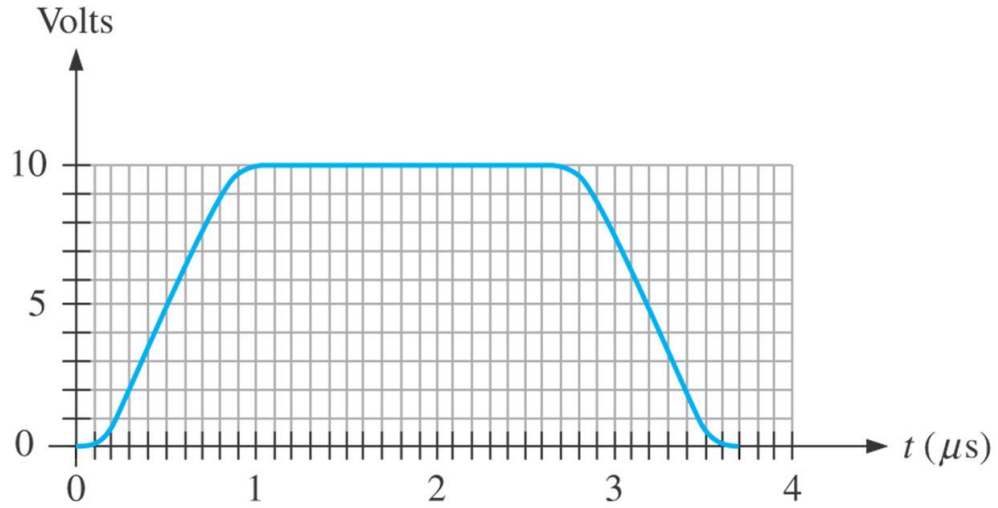
Review Questions

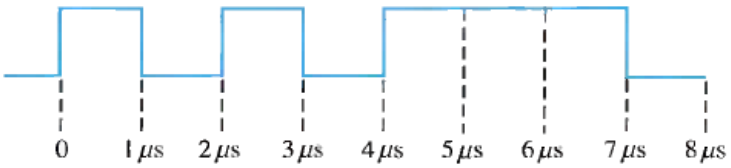
Digital Systems - Number Systems – Binary Operations and Codes

1 – For the pulse shown below, determine the followings.



a) Rise time b) Fall time c) Pulse width d) Amplitude

2 - What is the total serial transfer time for the eight bits in the following figure? What is the total parallel transfer time? Explain briefly.



3 - Convert each binary number to decimal. Show the steps.

a) 10111 b) 101010.01 c) 11011101 d) 1111000.101

4 - Convert each decimal number to binary. Show the steps.

a) 186 b) 0.246 c) 0.9028

5 - Perform the following binary operations. Show the steps.

a) 101 + 11 b) 1110-11 c) 1001 x110 d) 1001 / 11

6 - Determine the 2’s complement of each binary number. Explain briefly.

a) 11100 b) 1101 c) 10110000

7 - Express each decimal number as an 8-bit number in the 2’s complement form. Explain briefly.

a) +14 b) -34 c) -99

8 -Determine the value of the following single-precision floating point number. Show the steps.

1 10000001 01001001110001000000000

9 - Convert the Gray Code *00010* to binary.

10 - Determine which of the following parity codes are in error

a) 100110010 Even Parity b) 011101010 Even Parity c) 11110110 Odd Parity d) 00110001 Odd Parity