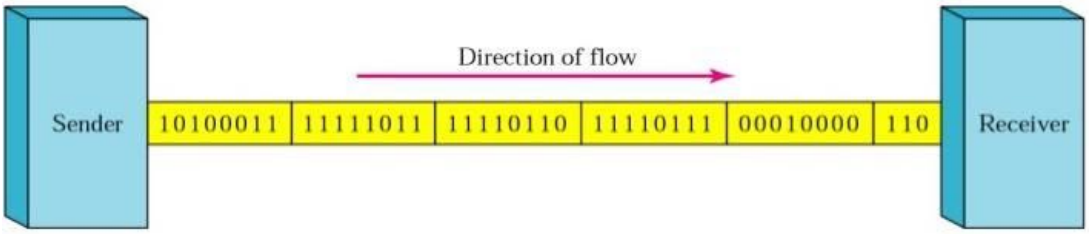
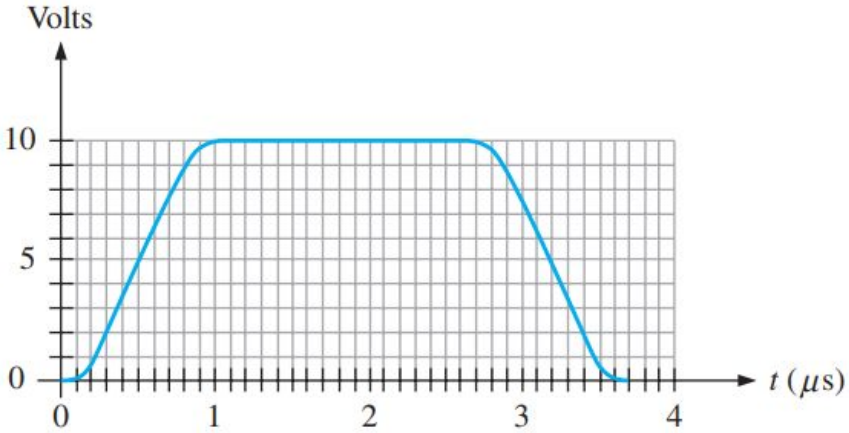
Problem Solving Assignment # 1 [2+2, 3, 2+2+2+2] Due Date: 16 Feb, 21

1. Generate a waveform (time vs state (high/low)) for the following binary numbers.
   a. 0100101001
   b. 11101001101
2. What is the sequence of numbers that the Receiver receives in the communication shown in the following picture?



3. For the pulse shown in Figure, graphically determine the following:
   (a) rise time **(b)** fall time **(c)** pulse width **(d)** amplitude



4. **CHALLENGE PROBLEM:** First three students to submit the correct answer from each section (CS-B/E and DF-A) will be rewarded bonus points.
   (a) Create a new number system with five unique symbols and translate decimal digits from 0 to 12 in this system. This number system should follow the same rules and logic as regular binary & decimal number systems.
   (b) Replace the letters in your first name into decimal numbers from the following table and use your generated number system to produce a result for the sum of these numbers.

a	b	c	d	e	f	g	h	i	j	k	l	m
1	2	3	4	5	6	7	8	9	10	11	12	13
n	o	p	q	r	s	t	u	v	w	x	y	z
14	15	16	17	18	19	20	21	22	23	24	25	26

Example: Digits: 0, ~, !, #, *
Name: W A Q A R ⇒ 23 + 1 + 17 + 1 + 18 = 60
NameSum: 60 = 0!!0 (but you have to show the summation process)