

# ECS 332: In-Class Exercise # 19

## Instructions

1. Separate into groups of no more than three persons. **The group cannot be the same as any of your former groups after the midterm.**
2. Write down all the steps that you have done to obtain your answers. You may not get full credit even when your answer is correct without showing how you get your answer.
3. **Do not panic.**

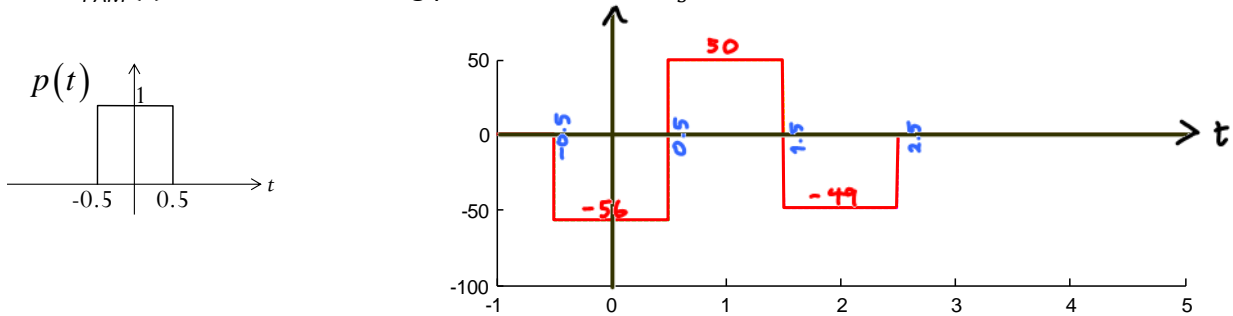
Date: <b>23 / 11</b> / 2018		
Name		ID (last 3 digits)
<b>Prapun</b>		<b>5 5 5</b>

A communication system is using PAM to transmit a three-character message "H2O". After converting each character in the message into its 7-bit ASCII representation and interpreting it as a two's complement representation, we see that the three symbols corresponds to three decimal numbers: -56, 50, -49. These numbers are denoted by  $m[0]$ ,  $m[1]$ , and  $m[2]$ , respectively. Assume  $m[n] = 0$  for other values of  $n$ .

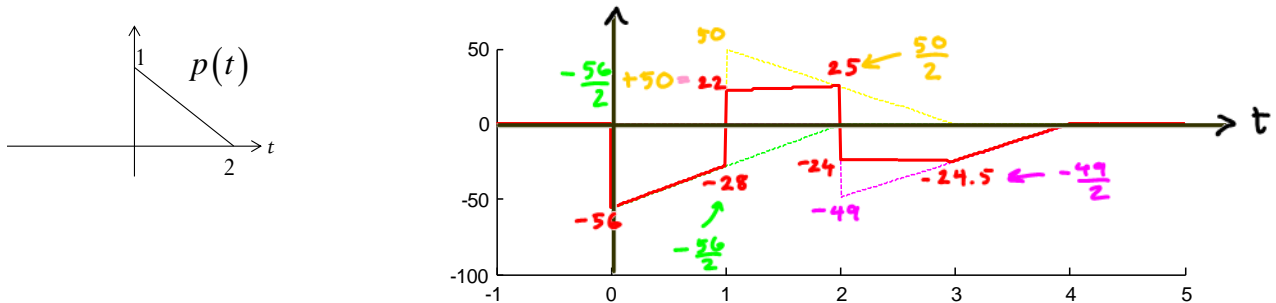
Recall that the PAM signal is constructed from the discrete-time message  $m[n]$  via

$$x_{PAM}(t) = \sum_{n=-\infty}^{\infty} m[n]p(t - nT_s).$$

(a) Plot  $x_{PAM}(t)$  when the following pulse is used and  $T_s = 1$ .



(b) Plot  $x_{PAM}(t)$  when the following pulse is used and  $T_s = 1$ .



(c) Plot  $x_{PAM}(t)$  when the following pulse is used and  $T_s = 0.4$ .

