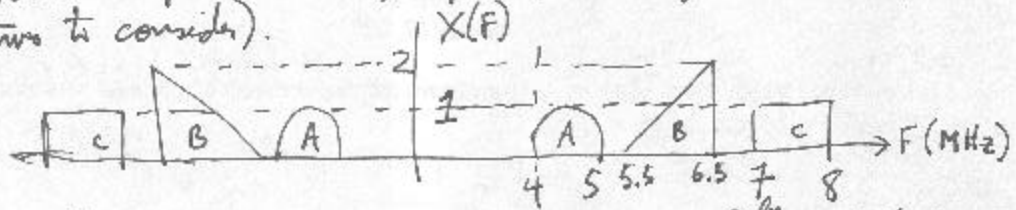
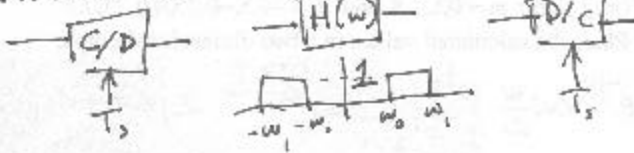


# QUIZ #4

Consider the FDM signal shown in Fig. 1, what is the Nyquist rate? Give all possible ranges of sampling frequencies (hint, there are two to consider).



We would like to remove signals B and C using <sup>only</sup> discrete-time methods. Using the blocks below assemble a system to do so. Make sure to use the minimum possible ~~sample~~ <sup>sample</sup> freq. State ~~both~~ <sup>the</sup> values ~~of~~ <sup>of</sup>  $T_s$ ,  $\omega_0$  and  $\omega_1$  will take in your design.



Solution:  $F_{\text{Nyquist}} = 16 \text{ MHz}$ .  
 $F_H/B = 8/4 = 2$  (Integer band positioning).  
 $l=1: 16 < F_s < \infty$ ,  $l=2: 8 < F_s < 8$   
 Will use  $F_{s,\text{min}} = 8 \text{ MHz}$ , thus  $T_s = 1/F_s = 125 \text{ ns}$ .

