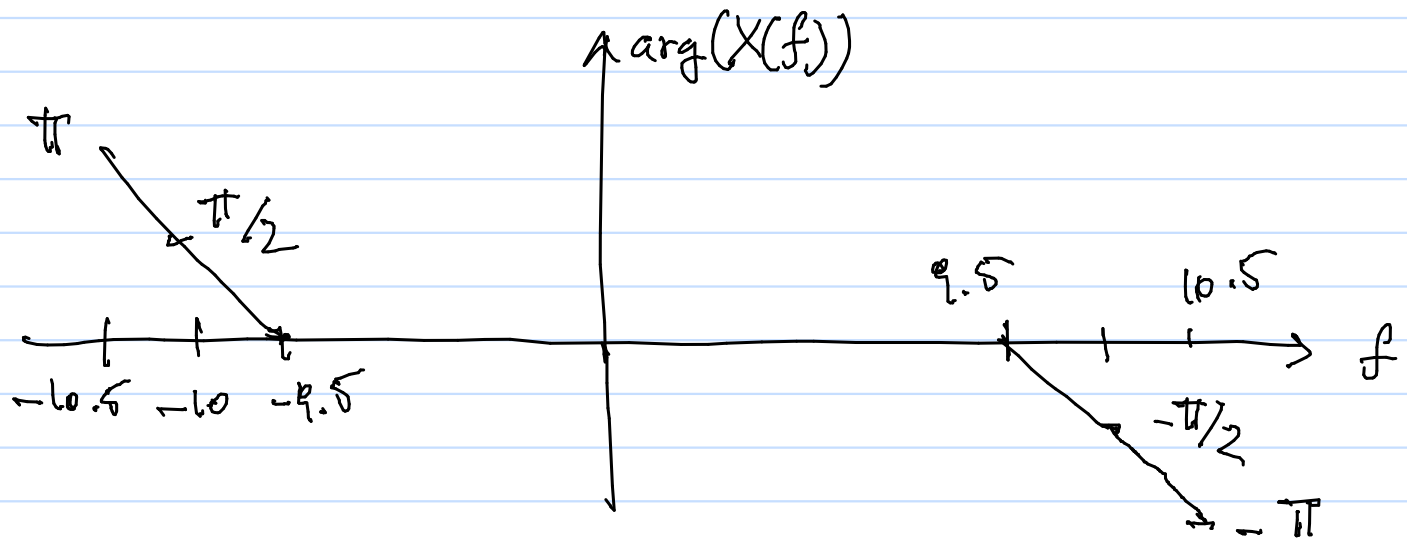
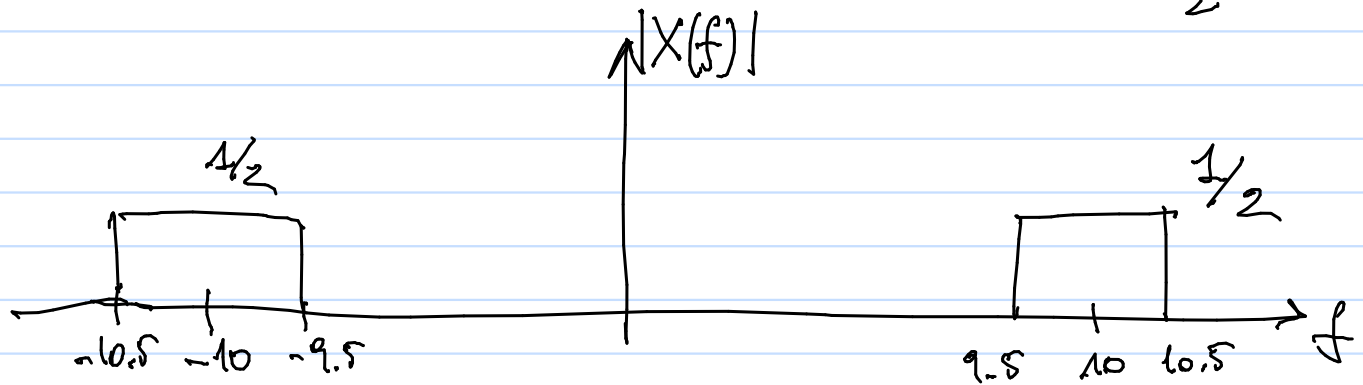
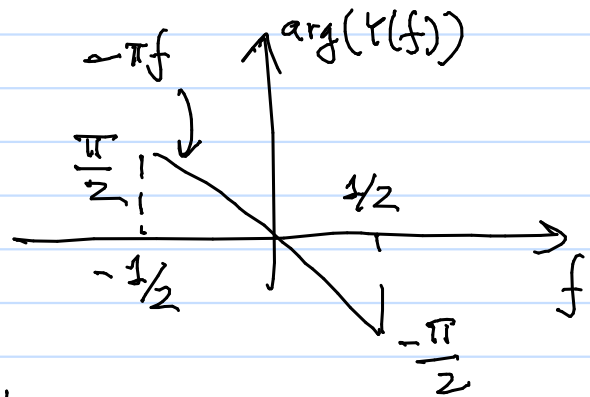
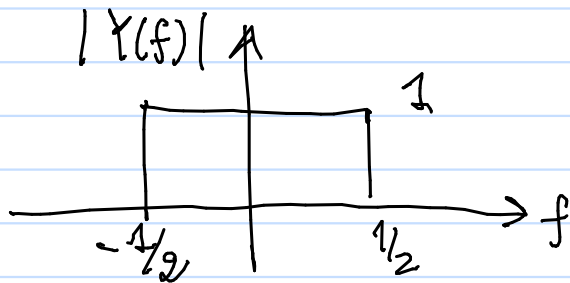
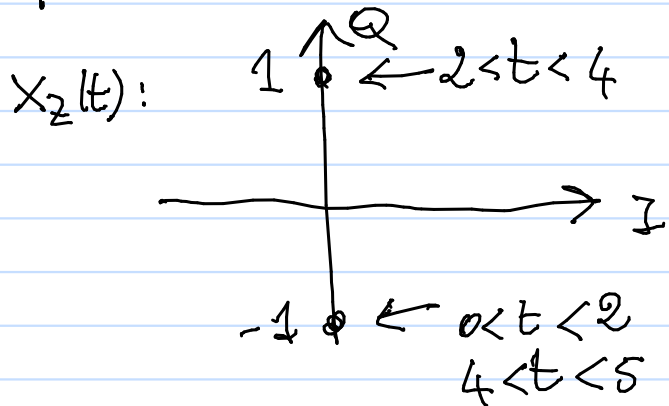
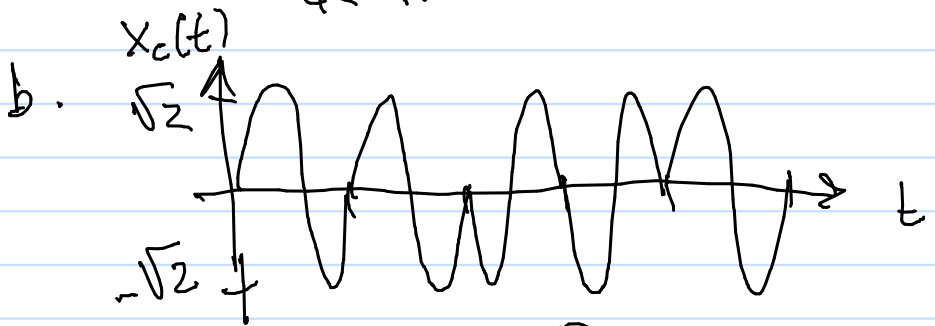
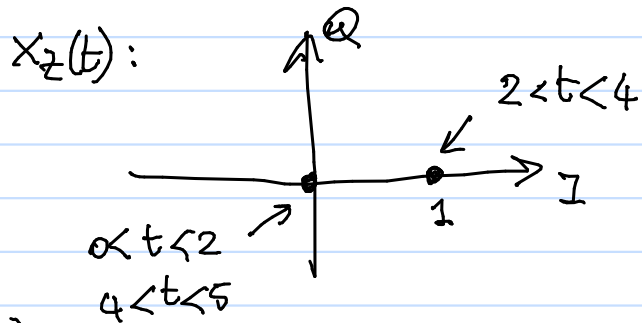
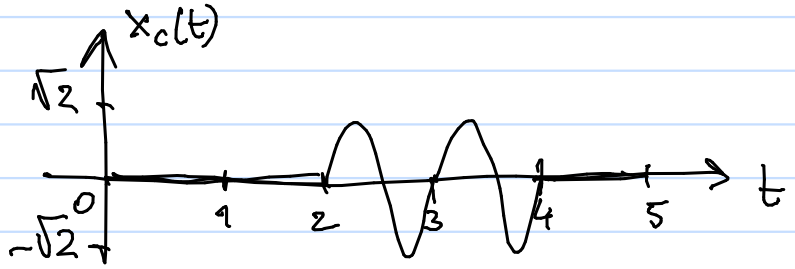


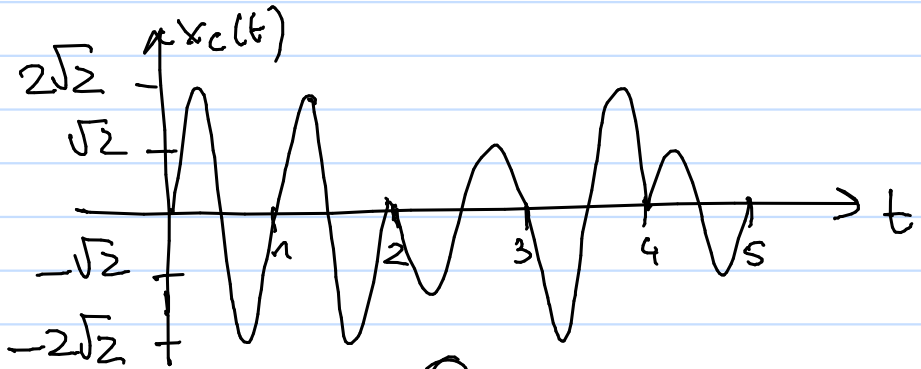
$$1. \quad x(t) = \underbrace{\text{sinc}\left(t - \frac{1}{2}\right)}_{y(t)} \sin(20\pi t)$$



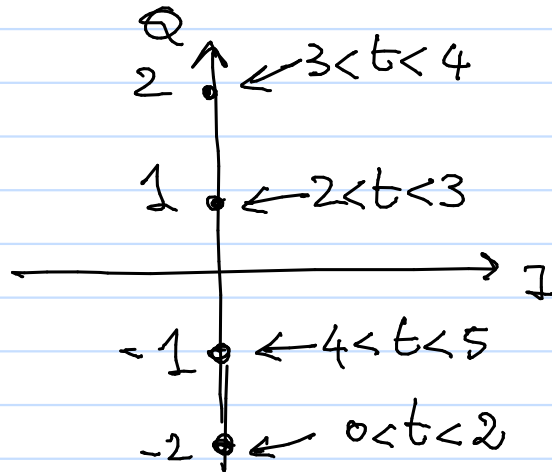
2. a. $M_1 = (0, 0, 1, 1, 0)$



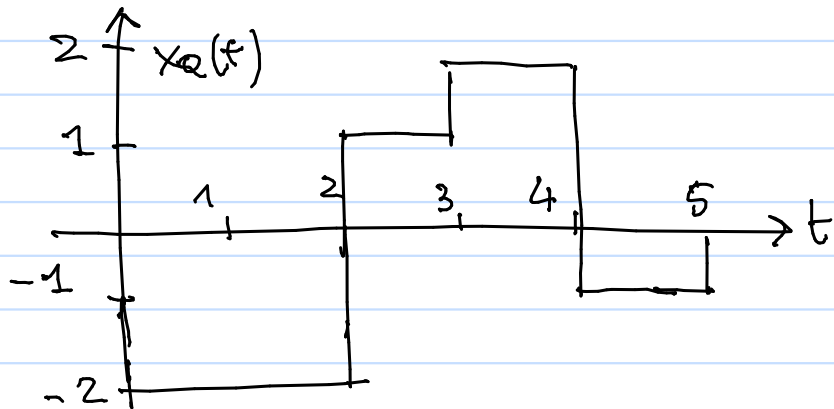
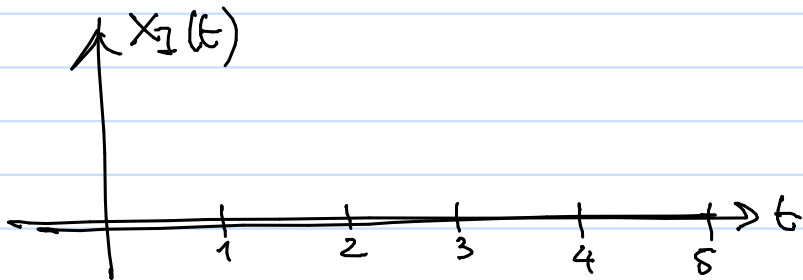
c. $M_2 = (1, 1, 0, 1, 0)$



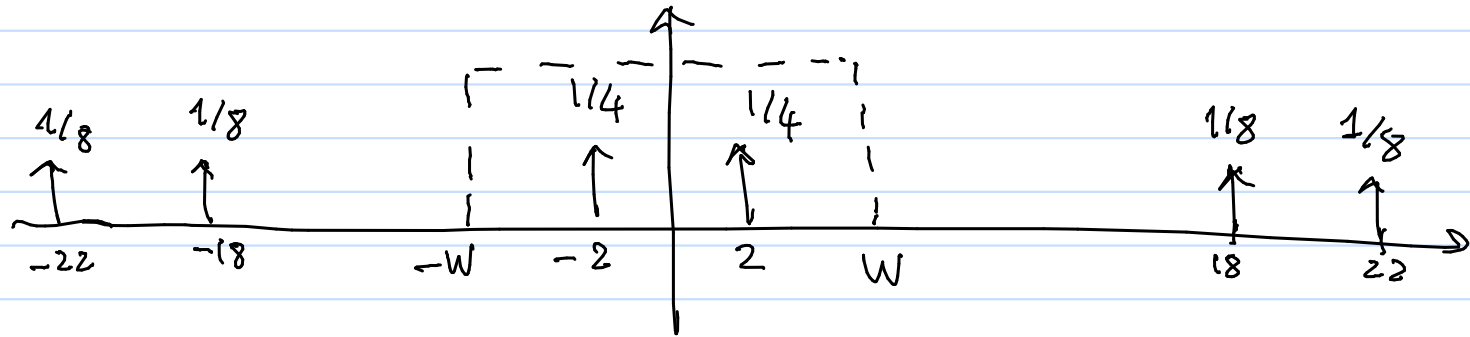
$x_2(t)$:



d.



3. Input signal: $\frac{1}{2} (\cos(4\pi t) + \cos(4\pi t) \cos(40\pi t))$



$\Rightarrow h(t) = 2W \text{sinc}(2Wt)$ for any $2 < W < 18$

For the second signal, there is no such filter (see assignment 1).