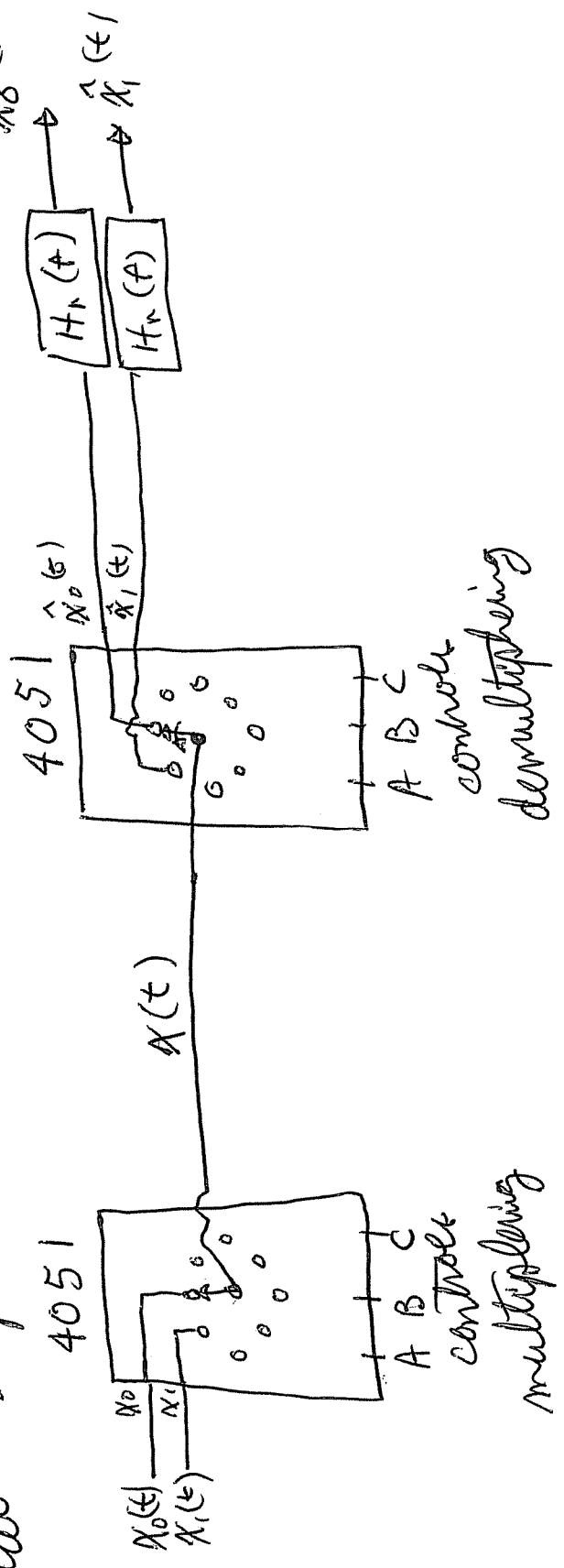


Time Division Multiplexing (TDM)

Traditional communication use Frequency Division Multiplexing (FDM)

The idea of TDM is to interleave sampled signals. For example, consider two signals that are naturally sampled by



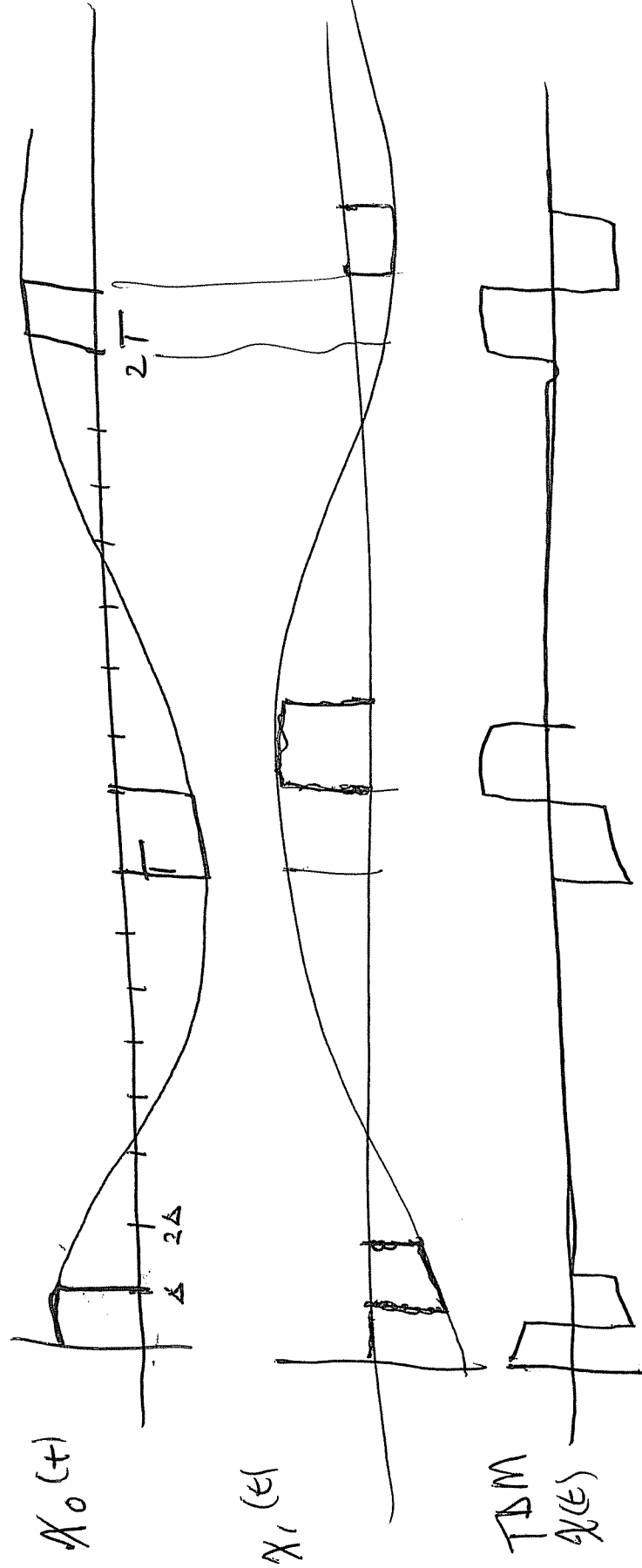
②-09

$$x(t) = x_0(t) (\text{rect}(\frac{t}{T}) * \sum_n \delta(t-nT)) + x_1(t) (\text{rect}(\frac{t-\Delta}{T}) * \sum_n \delta(t-nT-\Delta))$$

where $\Delta = T/4 = 1/8$

in general $x(t) = \sum_{i=0}^{7=8-1} x_i(t) (\text{rect}(\frac{t-\Delta i}{T}) * \sum_n \delta(t-nT-\Delta i))$

Consider the waveforms $x_0(t)$ and $x_1(t)$ A.T.



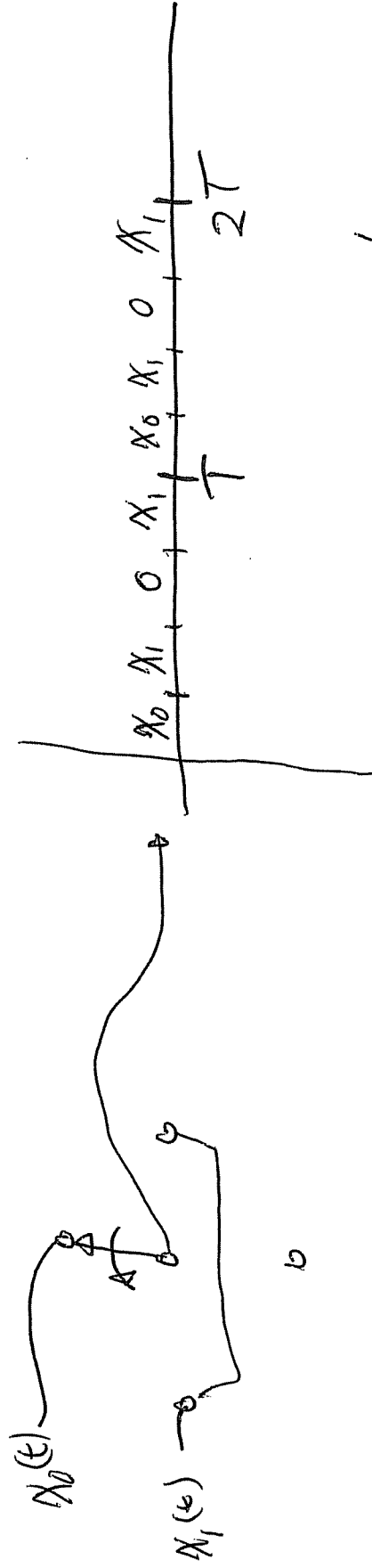
3-09

EX: TDM two signals with different

bandwidths

$B_0 = 2\text{KHz}$, $X_1(t) @ B_1 = 4\text{KHz}$

$X_0(t) @$



maximum sampling period $T = \frac{1}{4000}$ sec