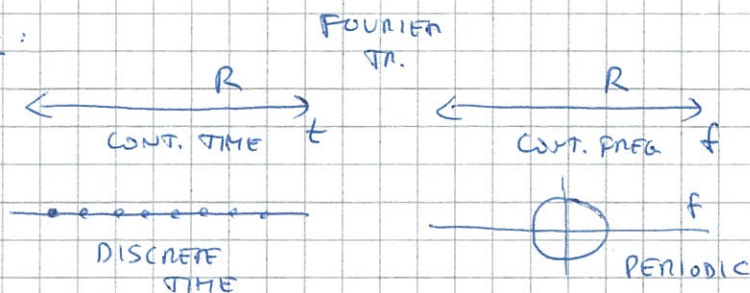


# SAMPLING:



$$u(t) \rightarrow u(nT_s) = u(n)$$

$$T_s = 1/f_s$$

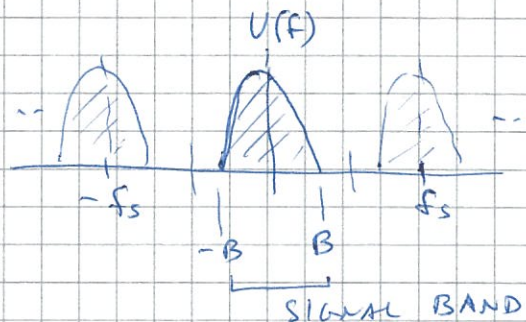
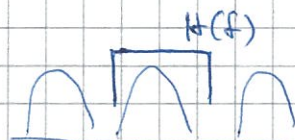
SAMPLING PERIOD  
--- FREQUENCY

POISSON SUMMATION =

$$(IF) \quad U(f) = \int_{-\infty}^{\infty} u(t) e^{-j2\pi ft} dt$$

$$(THEN) \quad T_s \cdot \sum_{n=-\infty}^{\infty} u(nT_s) e^{-j2\pi n f T_s} = \sum_{k=-\infty}^{\infty} U(f - k f_s) = U_s(f)$$

## SIGNAL RECONSTRUCTION:



$$U(f) = H(f) \cdot U_s(f)$$

$$u(t) = \sum_{n=-\infty}^{\infty} u(nT_s) \operatorname{sinc}\left(\frac{t - nT_s}{T_s}\right)$$

SHANNON - INTERPOLATION FORMULA

$$\operatorname{sinc}(x) = \frac{\sin x}{x}$$

IF  $f_s \geq B$  (NO OVERLAPPING)

IF OVERLAPPING = PROBLEMS  
NO IDEAL RECONSTRUCTION POSSIBLE!

$$H(f) = ?$$

