CH 22

D22.1

Always Valid Timing: Each clock cycle theres a valid value. Even when the window changes to 1/2 or double the frequency

D22.2

Periodically Valid Timing: The signal is valid once every n cycle. (n, represent the period of the signal)

D22.3

Flow-Control Timing: Uses explicit sequencing signals to sequence the transfer of data over an interface.

D22.1 3 example of "always valid timing"

1) Heart beat monitor
2) Video Card to monitor signal
3) ipod music output to your headphone or amplifier

D22.2 3 example of "periodically valid timing"

1) VPN Tunnel that is encrypted and the authentication key is changing and only valid for a small interval of time.
2) An IBM crytographic random number generator card. Periodically polls environment variables and comes up with non repeating results
3) Software that allows users to check passwords. And hardware which generates char that are valid only a short time frame.

D22.3 3 Examples of flow-control

1) Sending data over network using TCP
2) using half-duplex between two modems sending data
3) Sending Jobs to a printer.

CH 23

23.1 $T = T_m + T_{reg}$

Latency = $T = 20.5$ ns

Throughput = $\Theta = \frac{1}{20.5} = .0487 = 49$ mops

23.2

Latency = $T = 20ns + .500ns = 20.5$ ns

Throughput = $\Theta = \frac{n}{T} = \frac{5}{20.5} = .2439 = 244$ mops

23.3

Latency = $T = 20ns + 5(.500ns) = 22.5$ ns

Throughput = $\Theta = \frac{5}{22.5} = 222$ mops

23.4 $T = T_m + nT_{reg}$ $\Theta = \frac{1}{\frac{T_m}{n} + T}$

Latency = $T = 20ns + 6(.50ns)$

$T = 20ns + 3ns = \boxed{23ns}$

Throughput = $\Theta = \frac{1}{\frac{20}{5} + 23} = 37$ mops