

Sample questions on sequential circuits timing

Setup time: 10nS

Hold time: 20nS

$T_{\text{clk-q (Cont)}} = 20\text{nS}$

$T_{\text{clk-q (PD)}} = 30\text{nS}$

$T_{\text{COMB(Cont), A}} = 15\text{nS}$

$T_{\text{COMB(PD), A}} = 30\text{nS}$

$T_{\text{COMB(Cont), B}} = 20\text{nS}$

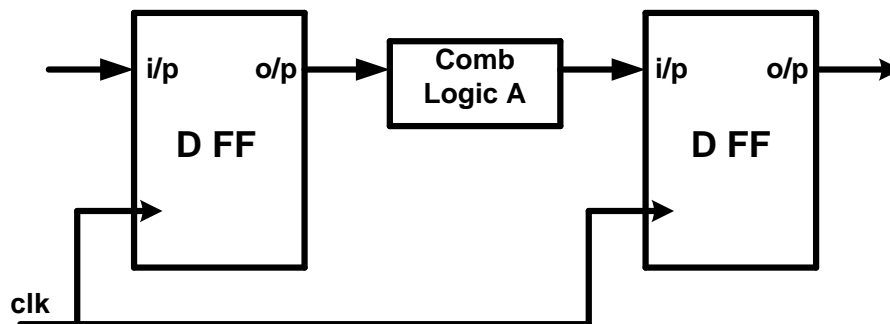
$T_{\text{COMB(PD), B}} = 25\text{nS}$

Skew Delay (Min) = 2nS

Skew Delay (Max) = 4nS

Jitter = -4nS to 6nS

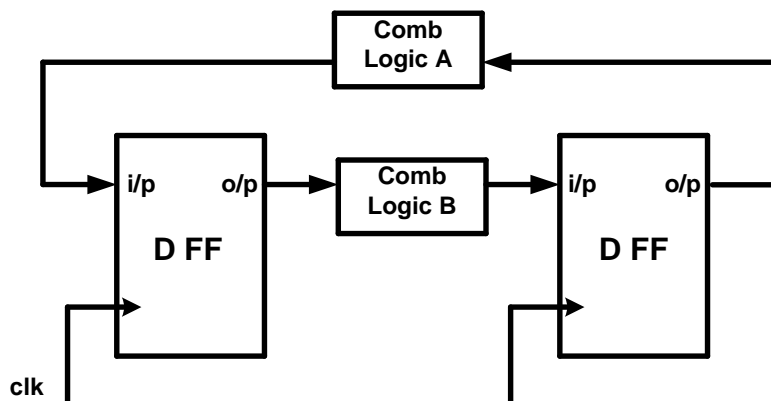
Q.1



$F_{\text{clk-max}} = ??$

Check specs for timing violation.

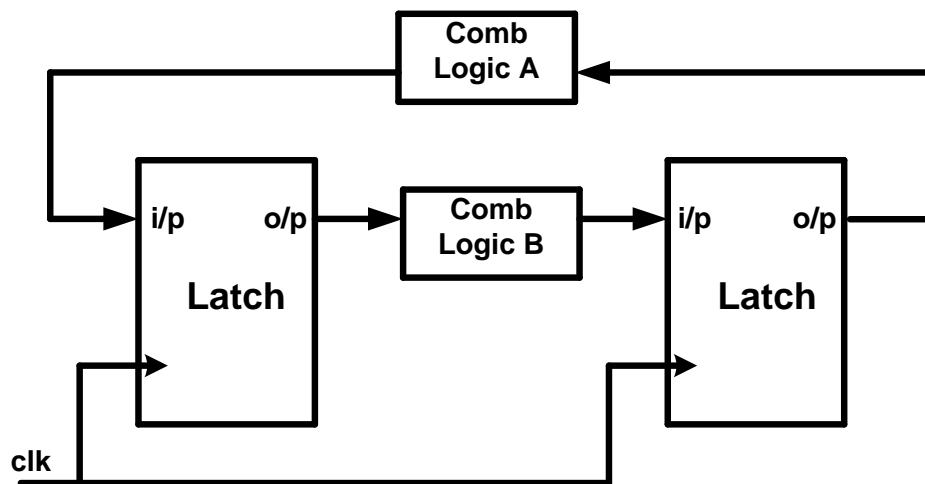
Q.2



$F_{\text{clk-max}} = ??$

Check specs for timing violation.

Q.3



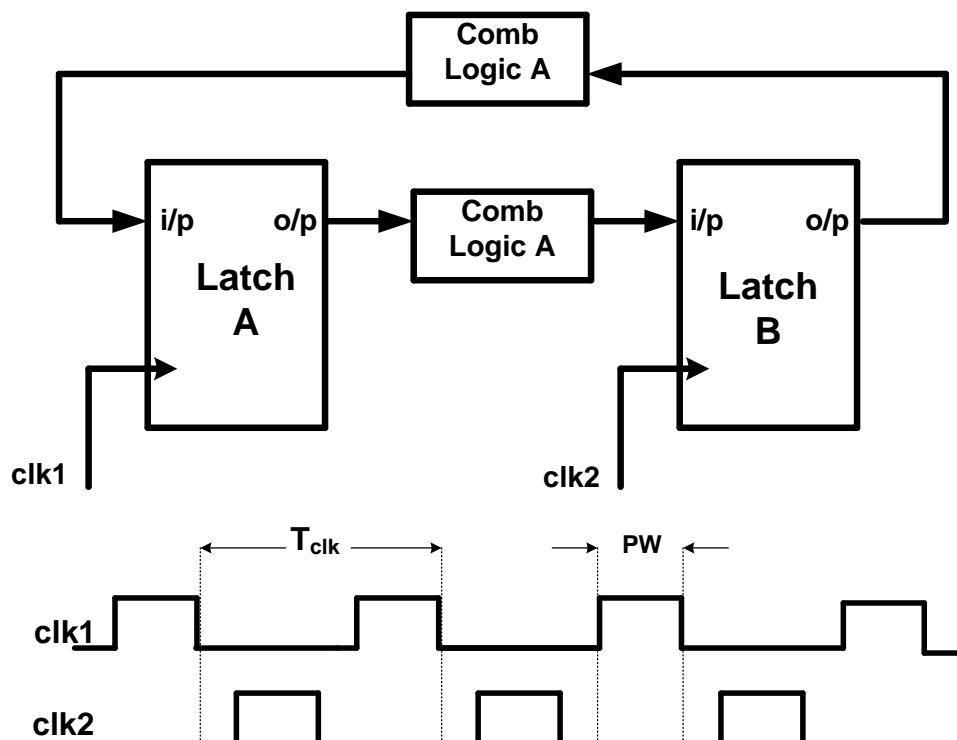
$F_{clk-max} = ??$

Check specs for timing violation.

Find hold time if timing violation is found.

Find pulse width value for max borrow time of 10nS.

Q.4



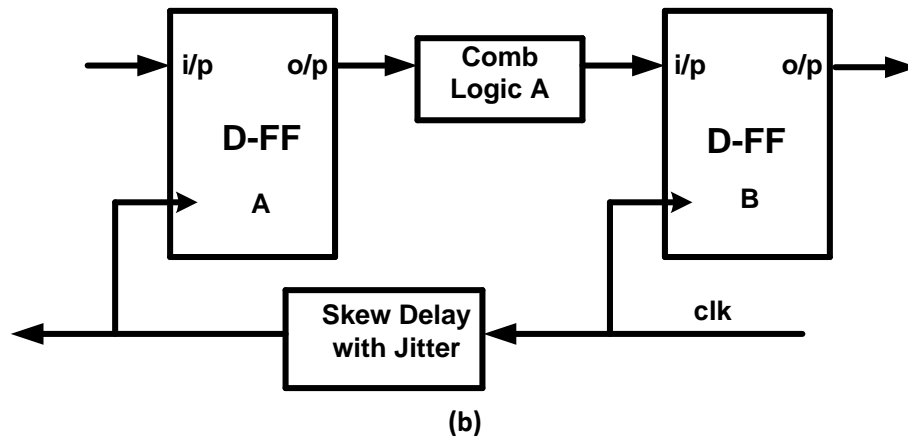
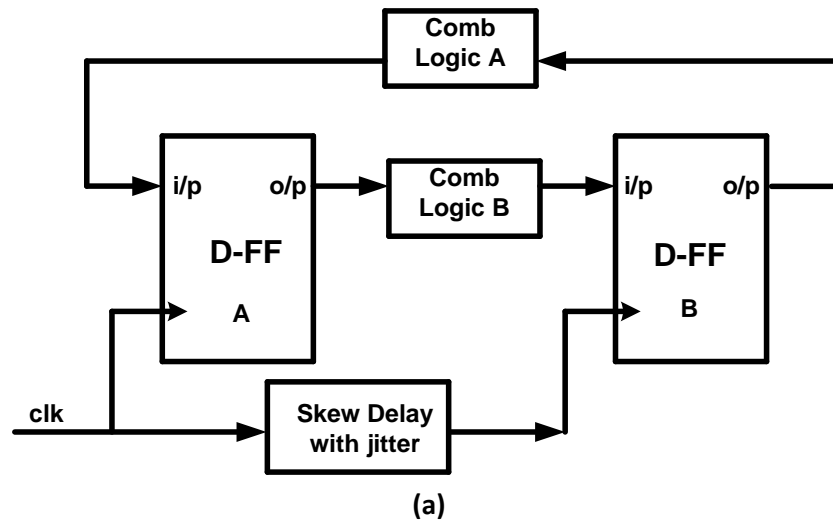
$F_{clk-max} = ??$ (For both clock time period and pulse width are same)

Check specs for timing violation.

Find hold time if timing violation is found.

Find pulse width value for max borrow time of 15nS.

Q.6



$F_{clk-max} = ??$

Check specs for timing violation.

Find hold time if timing violation is found.

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