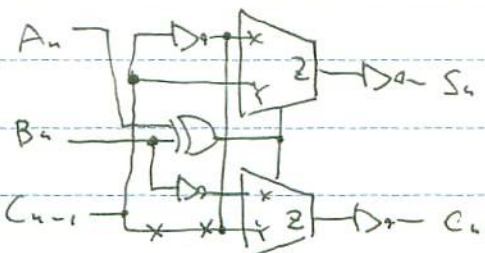


金沢大学工学部			試験答案用紙		
学 科	学 年	名 列 番 号	氏 名	試 験 科 目	
情報工学	3 年	番	秋田 悠一	集積回路工学 第2	

1. (1) 20



$$NFA = 2 \times 4 + 6 + 2 \times 2 = 24$$

#sel. #xor #inv

Sol. 1: $A_n \oplus B_n + C_n$
 $\# \text{sel.} = 2$
 $\# \text{xor} = 2$
 $\# \text{inv} = 2$

(2) 10 a. 8bit $\rightarrow 8 \times NFA = 192$

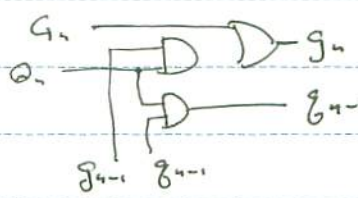
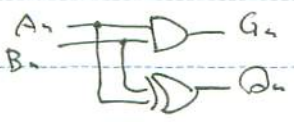
16bit $\rightarrow 16 \times NFA = 384$

10 b. 4bit CLA $N_{4CLA} = 6 \times 8 + (4+2) \times 8 + (6+2) \times 3 + (8+2) \times 2 = 108$

(67.5) $\rightarrow 108 \times 2 = 216$

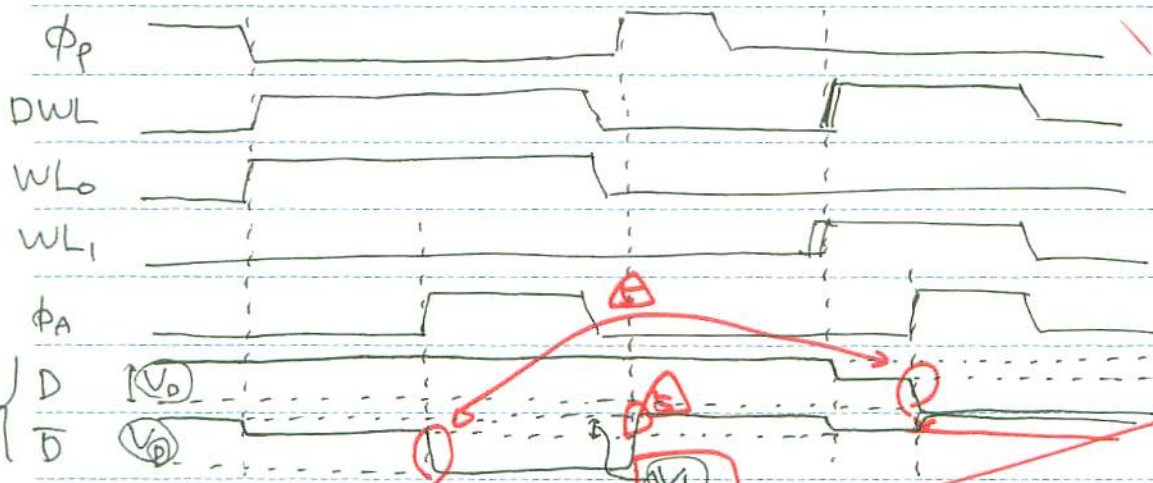
8bit $\rightarrow 2 \times N_{4CLA} = 376$
 16bit $\rightarrow 4 \times N_{4CLA} = 752$

10 c. $N_{0g} = 6 + 6 = 12$ $N_{0a} = 6 \times 2 + 6 = 18$



8bit $\rightarrow 8 \times N_{0g} + 18 \times N_{0a} = 516$
 16bit $\rightarrow 16 \times N_{0g} + 50 \times N_{0a} = 1284$

2. 30



$\Delta V_b = \frac{C_1}{C_1 + \frac{C_{DL}}{2}} V_b$

10 3. $703 \text{ ns} = 3 \Delta + 2 \Delta = 5 \Delta$

10 4. (0.8)

Handwritten notes in red ink, possibly a date or initials.

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