

ETFO

Selected answers from P57

P7.2a

- (a) $(\overline{A+B})(C\overline{A}+D)$
- (b) $\overline{(A+B\overline{C})D}$
- (c) $\overline{(\overline{A+B}\overline{C})(A\overline{B}\overline{C})}$
- (d) $\overline{\overline{A}\overline{B}\overline{C} + \overline{A}BC + A\overline{B}C}$
- (e) $\overline{(\overline{A+B+C})(\overline{A+B+C})(A+B+C)}$

Problem 6

Assume $\mu_{n\text{Cox}} = 3\mu_{p\text{Cox}}$

- (a) 6
- (b) 12
- (c) $3/2$
- (d) $3/4$

P7.32

$$D = \overline{A}B + \overline{A}\overline{C}$$

P7.35

$$F = \overline{A}\overline{C} + AC$$

P7.37

$$F = A + \overline{B} + \overline{C}$$

P7.55

$$F = \overline{B}_1 B_4$$

P7.56

$$X_3 = AB + AC + BC$$

$$X_5 = ABC + ABD + ABE + ACD + ACE + ADE + BCD + BCE + BDE + CDE$$

Problem 2

Use $V_{DD} = 5V$

- (a) 27.73ps
 - (b) 13.86ps
 - (c) const. 0
- Square wave: 250mW

Problem 3

69.3ps

Problem 4

$$(a) F = \overline{A}\overline{B} + \overline{A}\overline{D} + \overline{B}\overline{C} + \overline{C}\overline{D}$$

Problem 5

$$(a) V_{in} = V_{out} = 1.25V \text{ assuming } V_{in} \text{ change slow relative to } RC$$

$$V_{in} = 1 \rightarrow 0 \quad V_{out} = 0 \rightarrow 1 \quad \text{if } V_{in} \text{ changes fast}$$

$$(b) V_{in} = V_{out} = 1.25 / \quad V_{in} = 0 \rightarrow 1 \quad V_{out} = 1 \rightarrow 0$$

(c) 30

$$(d) 1.155 \times 10^{-10}s$$