

Homework 3: EE 252 Digital Electronics

1. Design the simplest sum-of-products circuit that implements the function

$$f(x_1, x_2, x_3) = \sum m(1, 3, 4, 6, 7)$$

2. Design the simplest product-of-sums circuit that implements the function

$$f(x_1, x_2, x_3) = \prod M(0, 2, 5)$$

3. Design the simplest circuit that has three inputs, x_1 , x_2 and x_3 , which produces an output value of 1 whenever two or more of the input variables have the value 1; otherwise, the output has to be 0.
4. For the timing diagram in the figure below, synthesize the function $f(x_1, x_2, x_3)$ in the simplest product-of-sums form.

