

1. Design a minimum-cost SOP circuit that implements a three-variable majority function.
2. Design the simplest circuit that implements the function $f = A \oplus B \oplus C$ using NOR gates.
3. Implement the function $f(x_1, x_2) = \sum m(0, 3)$ using a 2-to-4 binary decoder and an OR gate.
4. Implement the function $f(w_1, w_2, w_3) = \overline{w_1} \overline{w_3} + w_1 w_2 + w_1 w_3$ using a 4-to-1 Mux and other gates. Use w_1 and w_2 as selectors.