1. A four-variable boolean function is realized using $4x1$ multiplexers as shown in the figure.
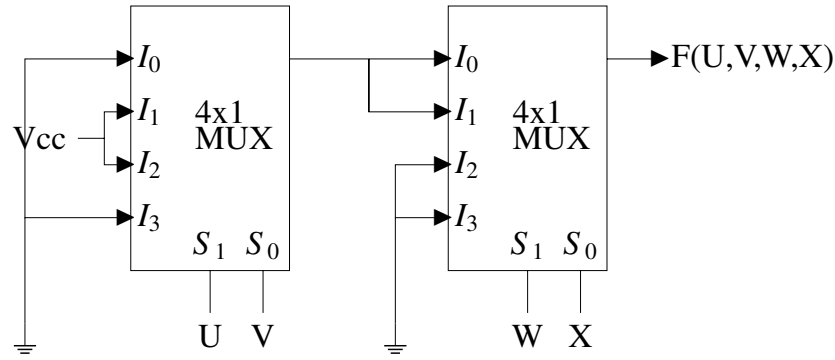

Figure 1: four-variable boolean function

The minimized expression for $F(U, V, W, X)$ is

(a) $\left(UV + \bar{U}\bar{V}\right)\bar{W}$

(b) $\left(UV + \bar{U}\bar{V}\right)\left(\bar{W}\bar{X} + \bar{W}X\right)$

(c) $\left(U\bar{V} + \bar{U}V\right)\bar{W}$

(d) $\left(U\bar{V} + \bar{U}V\right)\left(\bar{W}\bar{X} + \bar{W}X\right)$