1) eliminate state (b)

2) eliminate state (c)

3) Regard a as the only final state and eliminate state d:

Hence, $R_1 = (00+11+(01+10)(11+00)^*(10+01))^*$

Regard d as the only final state:

Hence, $R_2 = (00+11+(01+10)(11+00)^*(10+01))^*(01+10)(00+11)^*$

4) final regular expression

$R = R_1 + R_2$