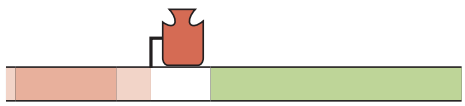
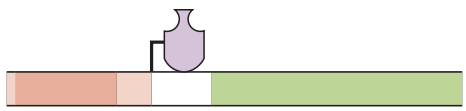
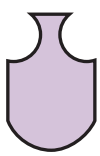
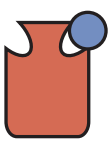
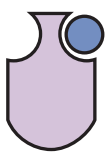
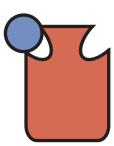
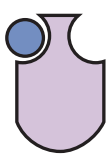
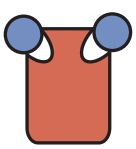
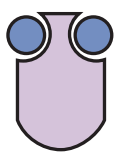
(A)

description	state	statistical weight
empty promoter		1
RNA polymerase bound		$\frac{P}{N_{NS}} e^{-\beta \Delta \varepsilon_P}$
active repressor bound		$\frac{R_A}{N_{NS}} e^{-\beta \Delta \varepsilon_{RA}}$
inactive repressor bound		$\frac{R_I}{N_{NS}} e^{-\beta \Delta \varepsilon_{RI}}$

(B)

active		inactive	
state	statistical weight	state	statistical weight
	1		$e^{-\beta \Delta \varepsilon_{AI}}$
	$\frac{c}{K_A}$		$e^{-\beta \Delta \varepsilon_{AI}} \frac{c}{K_I}$
	$\frac{c}{K_A}$		$e^{-\beta \Delta \varepsilon_{AI}} \frac{c}{K_I}$
	$\left(\frac{c}{K_A}\right)^2$		$e^{-\beta \Delta \varepsilon_{AI}} \left(\frac{c}{K_I}\right)^2$

$$\sum_{\text{active}} w_{\text{a}} = \left(1 + \frac{c}{K_A}\right)^2$$

$$\sum_{\text{inactive}} w_{\text{i}} = \left(1 + \frac{c}{K_I}\right)^2$$