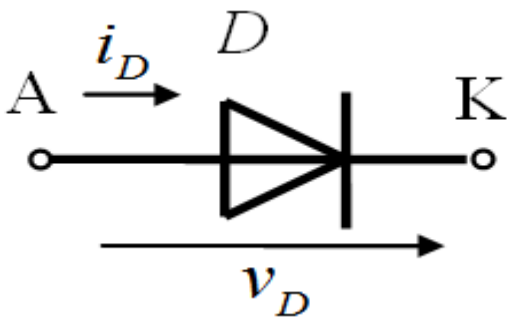
Q1



The diode equation (exponential model) is:

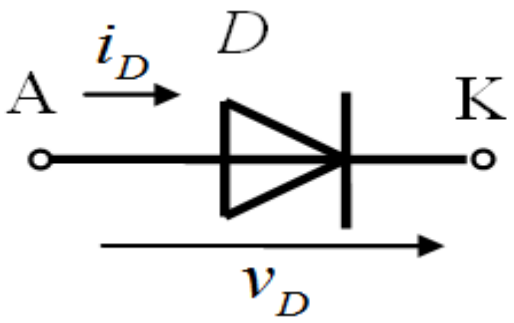
a) $i_D = I_S(e^{\frac{v_D}{nV_T}} - 1)$

b) $v_D = I_D(e^{\frac{i_S}{nV_T}} - 1)$

c) $v_D = I_S(e^{\frac{i_D}{nV_T}} - 1)$

d) $i_D = V_T(e^{\frac{v_D}{nI_S}} - 1)$

Q2



For the constant voltage drop model, the equations are:

a) **D – (on)** $\begin{cases} v_D < 0.7\ \text{V} \\ i_D > 0 \end{cases}$

D – (off) $\begin{cases} v_D > 0.7\ \text{V} \\ i_D < 0 \end{cases}$

b) **D – (on)** $\begin{cases} v_D > 0.7\ \text{V} \\ i_D = 0 \end{cases}$

D – (off) $\begin{cases} v_D > 0.7\ \text{V} \\ i_D < 0 \end{cases}$

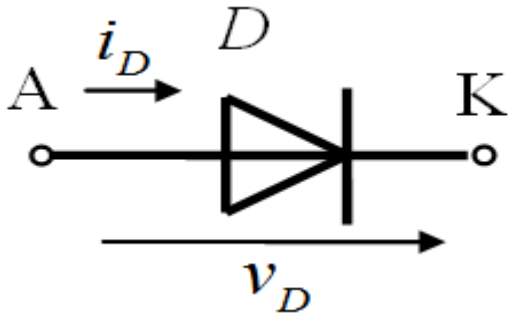
c) **D – (on)** $\begin{cases} v_D = 0.7\ \text{V} \\ i_D > 0 \end{cases}$

D – (off) $\begin{cases} v_D < 0.7\ \text{V} \\ i_D = 0 \end{cases}$

d) **D – (on)** $\begin{cases} v_D = 0.7\ \text{V} \\ i_D > 0 \end{cases}$

D – (off) $\begin{cases} v_D < 0.7\ \text{V} \\ i_D > 0 \end{cases}$

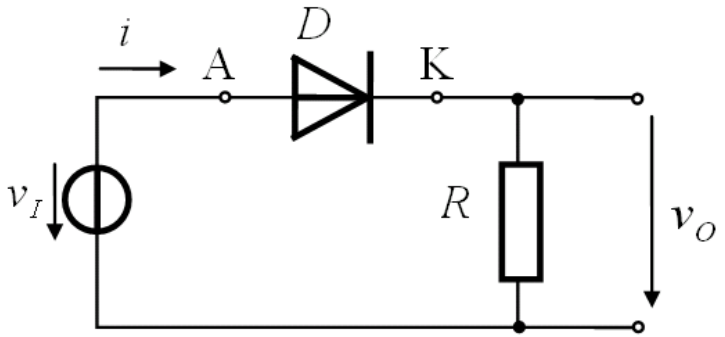
Q3



Common values for i_D are:

a) tens...hundreds mA, positive
b) tens...hundreds A, positive
c) tens...hundreds mA, negative
d) tens...hundreds A, negative

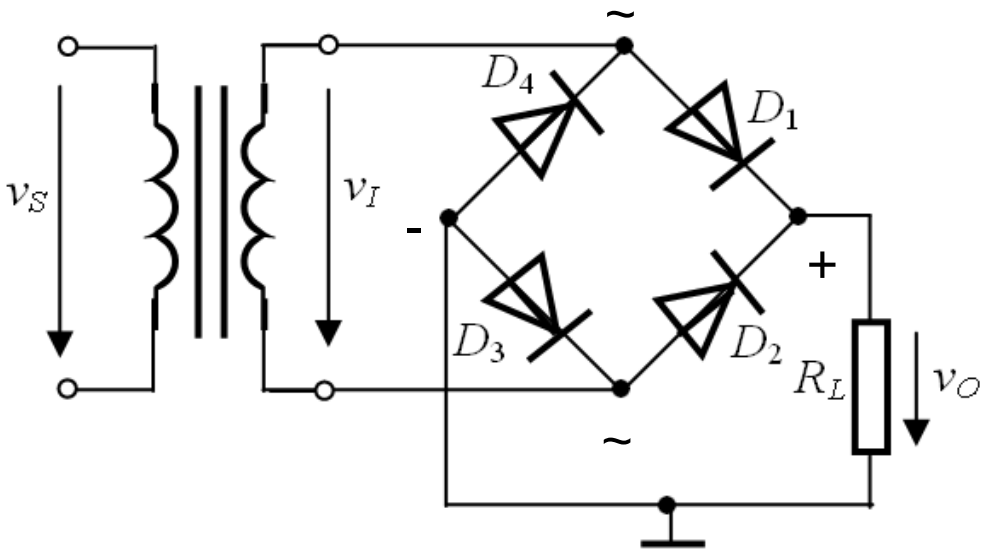
Q4



D will be *on* for v_I:

a) negative, < 0.7 V
b) positive, > 0.7 V
c) positive, > - 0.7 V
d) negative, < - 0.7 V

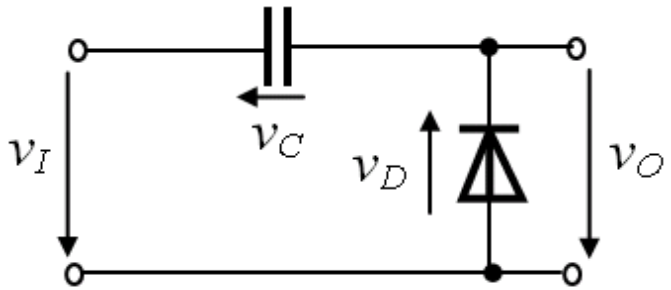
Q5



For the positive halfwave of v_I, the following diodes are *on:*

a) D1, D4
b) D3, D4
c) D1, D3
d) D2, D3

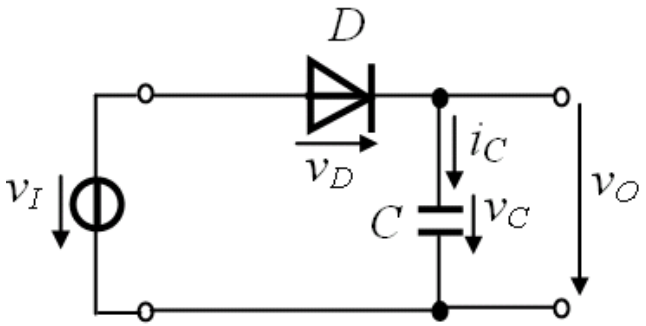
Q6



The application of the circuit is:

a) positive peak detector
b) negative peak detector
c) downward translation
d) upward translation

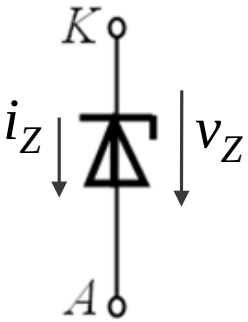
Q7



The application of the circuit is:

a) positive peak detector
b) negative peak detector
c) downward translation
d) upward translation

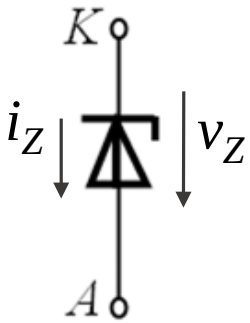
Q8



A Zener diode used in forward bias is equivalent to:

a) a dc voltage source
b) a common diode
c) an open circuit
d) an ac voltage source

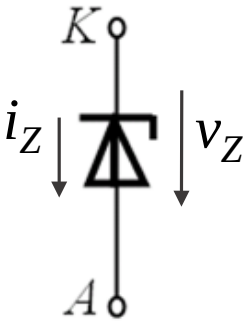
Q9



A Zener diode used in reverse bias is equivalent to:

a) a dc voltage source
b) a common diode
c) an open circuit
d) an ac voltage source

Q10



For a Zener diode with the code PL5V1, the following is true:

a) V_Z = 1.5 V
b) I_Z = 1.5 mA
c) I_Z = 5.1 mA
d) V_Z = 5.1 V