

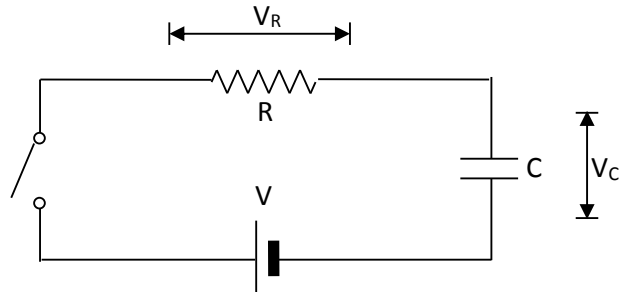
Name: _____

Sec: _____

PHY 232 Fall 2017 Supplementary Work (Not to be collected)

Class 25. RC Circuits

PART A.



If Q is the charge stored in the capacitor and I is the current from the battery. Switch is closed at $t=0$.

(a) What is the value of the following quantities at $t=0$ (in terms of V , R , and C):

$Q =$ _____ $I =$ _____ $V_C =$ _____ $V_R =$ _____

(b) What is the value of the following quantities at $t=\infty$ (in terms of V , R , and C):

$Q =$ _____ $I =$ _____ $V_C =$ _____ $V_R =$ _____

(c) Write down the following quantities as a function of time (in terms of V , R , C , and t):

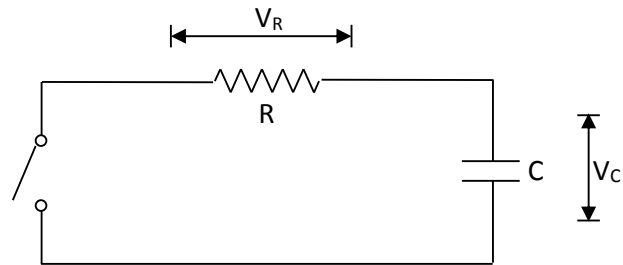
$Q(t) =$ _____

$I(t) =$ _____

$V_C(t) =$ _____

$V_R(t) =$ _____

PART B.



If Q is the charge stored in the capacitor and I is the current through R . The capacitor is originally charged with a charge of Q_0 . Switch is closed at $t=0$.

(a) What is the value of the following quantities at $t=0$ (in terms of V , R , and Q_0):

$$Q = \underline{\hspace{2cm}} \quad I = \underline{\hspace{2cm}} \quad V_C = \underline{\hspace{2cm}} \quad V_R = \underline{\hspace{2cm}}$$

(b) What is the value of the following quantities at $t=\infty$ (in terms of V , R , and Q_0):

$$Q = \underline{\hspace{2cm}} \quad I = \underline{\hspace{2cm}} \quad V_C = \underline{\hspace{2cm}} \quad V_R = \underline{\hspace{2cm}}$$

(c) Write down the following quantities as a function of time (in terms of V , R , Q_0 and t):

$$Q(t) = \underline{\hspace{4cm}}$$

$$I(t) = \underline{\hspace{4cm}}$$

$$V_C(t) = \underline{\hspace{4cm}}$$

$$V_R(t) = \underline{\hspace{4cm}}$$