

## Quiz for Lesson 9,10

Sept. 21, 2015

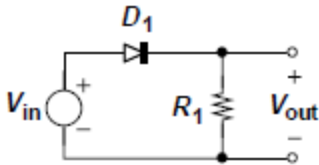
Electronic Circuits 1

Prof. Woo-Young Choi

Name: \_\_\_\_\_ Student ID: \_\_\_\_\_

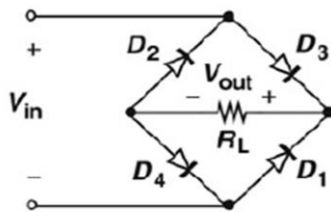
### Prob. 1

Plot  $V_{out}(t)$  for  $0 < t < 1.5\text{msec}$  for the circuit shown below when  $V_{in}(t) = V_0 \sin(2\pi ft)$  with  $V_0 = 5\text{V}$  and  $f = 1\text{KHz}$ . Assume  $V_{D,on} = 0.8\text{V}$  for the PN junction diode. Clearly indicate the peak value for  $V_{out}$  and the values of  $V_{in}$  when the diode turns on/off.



### Prob. 2

Plot  $V_{out}$  vs  $V_{in}$  for the circuit shown below. Use  $V_{D,on} = 0.8\text{V}$  for the PN junction diode.

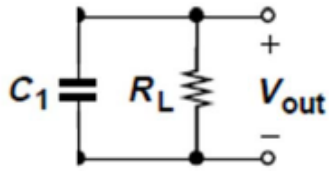


### Prob. 3

Plot  $V_{out}(t)$  for  $0 < t < 1.5\text{msec}$  for the circuit shown in Prob. 2 when  $V_{in}(t) = V_0 \sin(2\pi ft)$  with  $V_0 = 5\text{V}$  and  $f = 1\text{KHz}$ . Assume  $V_{D,on} = 0.8\text{V}$  for the PN junction diode. Clearly indicate the values for  $V_{out}$  when it reaches the peak and the diode turns on/off.

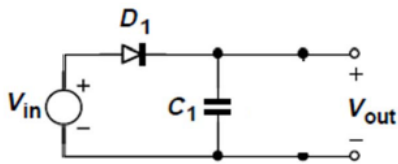
**Prob. 4**

Plot  $V_{out}(t)$  for  $t > 0$  in the following circuit. Assume  $V_{out}(t=0) = V_0 > 0$ .



**Prob. 5**

Plot  $V_{out}(t)$  for  $0 < t < 1.5 \text{ msec}$  for the circuit shown below when  $V_{in}(t) = V_0 \sin(2\pi ft)$  with  $V_0 = 5 \text{ V}$  and  $f = 1 \text{ KHz}$ . Assume  $V_{D,on} = 0.8 \text{ V}$  for the PN junction diode and  $V_{out}(t=0) = 0$ . Clearly indicate on your plot when the diode turns on or off.



**Prob. 6**

Determine the approximate expression for the ripple voltage in  $V_{out}(t)$  when  $V_{in}(t) = V_0 \sin(2\pi ft)$  with  $V_0 \gg V_{D,on}$  and  $1/f \gg R_L C_1$ . Assume  $V_{out}(t=0) = 0$ .

