

CASE WESTERN RESERVE UNIVERSITY
Case School of Engineering
Department of Electrical Engineering and Computer Science

ENGR 210. Introduction to Circuits and Instruments (4)

Quiz No. 9

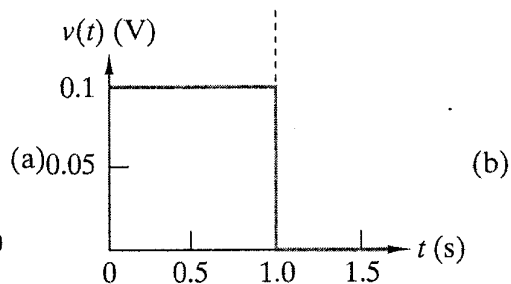
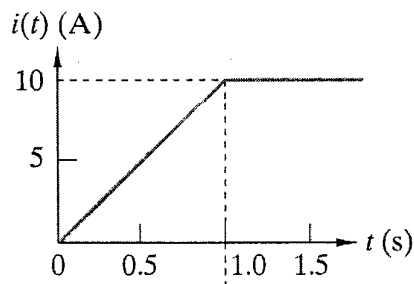
11/7/03

Name (Section): Solutions

PUT ANSWERS IN THE SPACE PROVIDED AND SHOW YOUR WORK

Problem 1 (10 points)

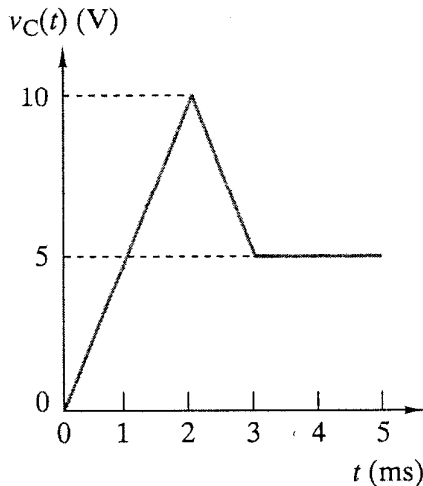
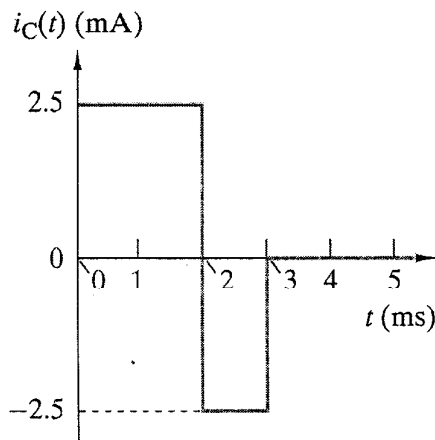
A particular element is tested and found to have $i(t)$ and $v(t)$ as shown here. Identify the type of element and its value.



Type = Inductor

Value = 10 mH

A second element is tested and found to have $i(t)$ and $v(t)$ as shown below. Identify the type of element and its value.



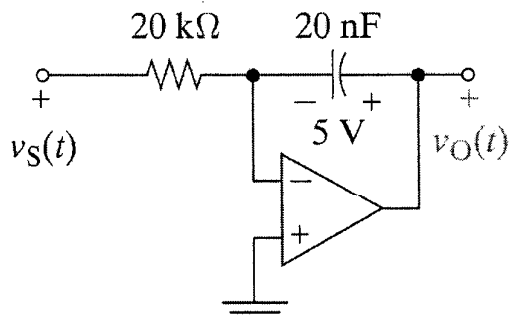
Type = Capacitor

Value = 0.5 μ F

(over)

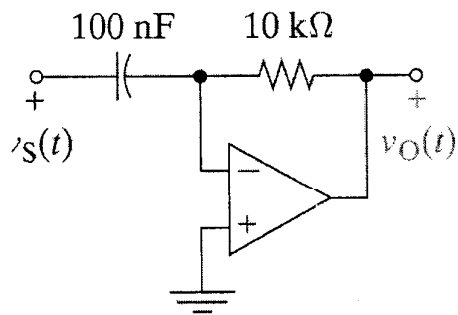
Problem 2 (10 points)

Write the expression for $v_o(t)$ for each of these circuits.



$$v_o(t) = \frac{5 - 2500 \int_0^t v_s(\tau) d\tau}{1}, \quad t > 0$$

$$5\text{ V} - \frac{1}{RC} \int_0^t v_s(\tau) d\tau$$



$$v_o(t) = - \frac{1}{1000} \frac{dv_s(t)}{dt}$$

$$-(RC) \frac{d}{dt} v_s(t)$$

(over)