

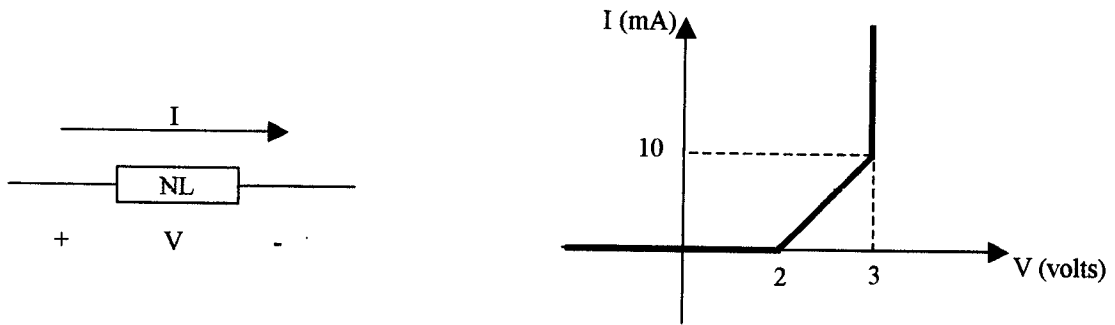
**EXPLOD III (Explanation-based On Line Discussion Section), QUIZ 5**

Ali Shakouri, 11/21/2002

Name: \_\_\_\_\_

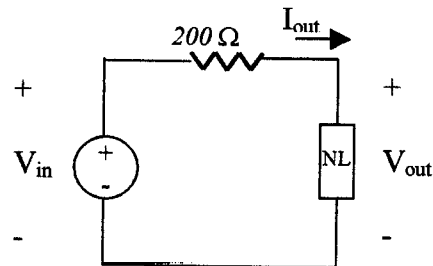
This is a close-book quiz. Please answer the following questions in one sitting on your own (during the period 11/21-11/26). Note how much time you spent on this quiz. Then, login on the EXPLOD web page and upload your answer (between today- 10am 11/27: can upload first answer, can NOT see other answers; between 10 am 11/27 - 11:59pm 11/30: can look at other answers, can upload the second answer).

Here is the current-voltage characteristic of a new non-linear circuit element.



**Question 1.** What are the output voltage and current in the DC circuit below?

Three cases (a)  $V_{in}=1V$ , (b)  $V_{in}=2.2V$ , (c)  $V_{in}=4V$



**Question 2.** We added a small signal sinusoidal source at the input, plot output voltage versus time.

Three cases (a)  $V_{in}=1V$ , (b)  $V_{in}=2.2V$ , (c)  $V_{in}=4V$  (in each case what is the small signal equivalent circuit of the non-linear element)

