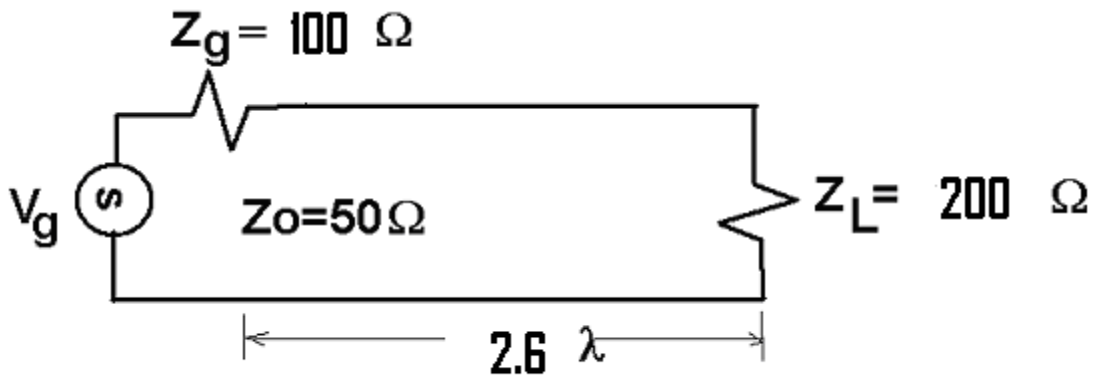


Exam Problem on Standing Waves:

ECE 3300 Midterm I September 29, 2004

1. (33 points) For the air-filled coaxial transmission line shown below where  $V_g(t) = 5.5 \sin(10^6 t)$  volts



- (a) Write the equation for the voltage in the MIDDLE of the line ( $4.8 \lambda$  to the left of the load). Clearly give the value of all variables in the equation.

Sketch the voltage standing wave that is set up on the line. Clearly show the location of the voltage minima and maxima. Show the RELATIVE value of the voltage minimum and maximum points (you do not have to calculate  $V_{\max}$  or  $V_{\min}$  to do this).