1. For the amplifier model shown, find
   
   a. the incidence matrix and branch admittance matrix (use the graph shown);
   
   b. the node admittance matrix;
   
   c. the voltage gain $|V_{out}/V_{in}|$ at $\omega = 1$ kHz and 10 GHz. What conclusion can you draw from these results?

2. Find the input impedance $Z(s)$ of the circuit shown.