a) Using the properties of the OP-AMP:
   - No voltage drop across input
   - No current flow into OP-AMP's input

\[ I_{\text{out}} = \frac{V_{\text{in}}}{2} j\omega f C + \frac{V_{\text{in}}}{2j\omega f C} \]

\[ \frac{I_{\text{out}}}{V_{\text{in}}} = j\omega f C \]

b) Since a current is supplied for any \( R_L \), it appears to be a current source.

\[ \text{Voltage-controlled current source} \]

c) \[ i_{\text{out}} = \frac{C}{d} \frac{dV_{\text{in}}}{dt} \Rightarrow i_{\text{out}} = -\frac{CV_o e^{-t/C}}{C} \]