

1. If a circuit has its transfer function $H(s)$,

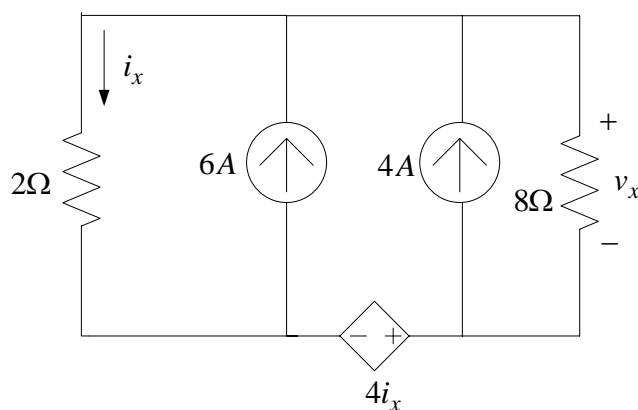
$$H(s) = \frac{(s+3)(s+5)}{s(s^2+4s+5)}$$

Find the impulse response of this circuit. (20%)

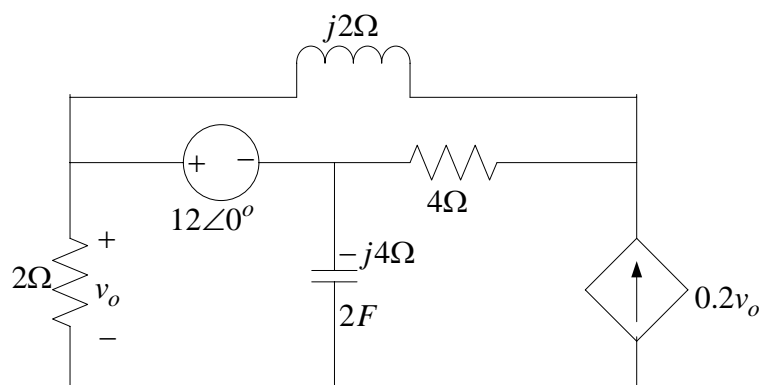
2. Construct a two-port circuit that realize the following Z parameters. (20%)

$$Z = \begin{bmatrix} 1 + \frac{3}{s} & \frac{2}{s} \\ \frac{1}{s} & 2s + \frac{1}{s} \end{bmatrix} \Omega$$

3. Find the i_x and v_x in the following circuit. (20%)



4. For the following circuit, find $v_o(t)$ in the sinusoidal steady state. (20%)



5. If the $R_{eq} = 60\Omega$ in the following circuit, find R . (20%)

