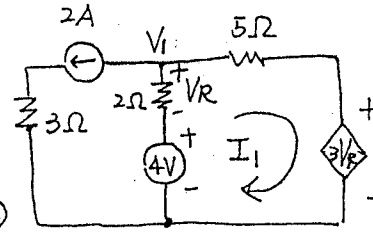
淡江大學八十七學年度日間部轉學生入學考試試題

系別：電機工程學系三年級　　科目：電 路 學

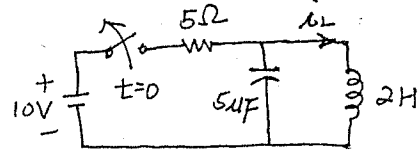
本試題共 1 頁

1. The circuit shown in Fig 1. 20%
   (a) Find the current I_1
   (b) Determine the power supplied (or absorbed) by the controlled-voltage source



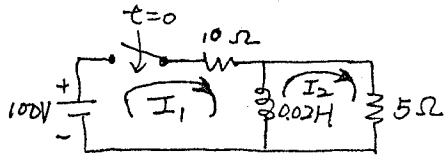
(Fig. 1)

2. The circuit shown in Fig. 2 is under steady state and the switch is opened at $t=0$. Find the frequency and magnitude of the current i_L 20%



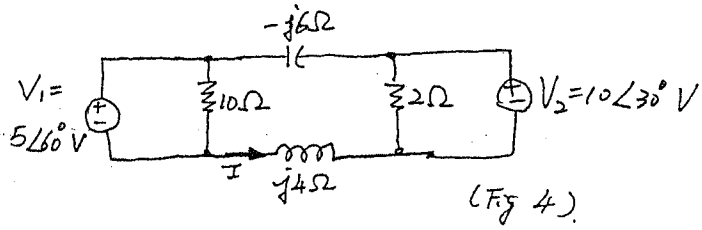
(Fig. 2)

3. The switch shown in Fig. 3 is closed at $t=0$. using Laplace transform method to find the the currents I_1 and I_2 for $t>0$ 20%



(Fig. 3)

4. Determine the current in the $j4\Omega$ inductor of the circuit of Fig 4. 20%



(Fig 4)

5. Design an RL high-pass filter having a cutoff frequency of 2kHz. 20%
   (a) Let $R=4K\Omega$, find $L=?H$.
   (b) determine V_{out} at 100 Hz, 500 Hz and 100KHz for a 100V input.