國 立 宜 蘭 大 學
九 十 八 學 年 度 轉 學 招 生 考 試
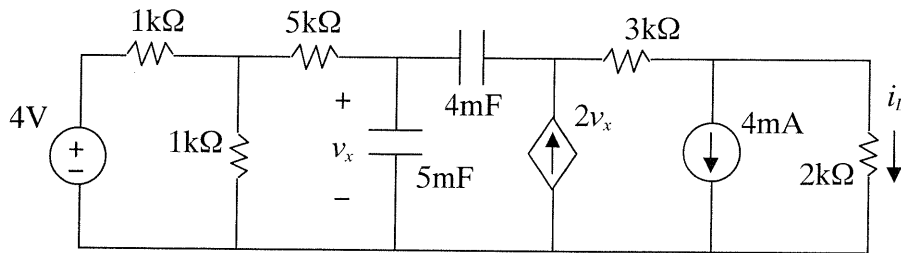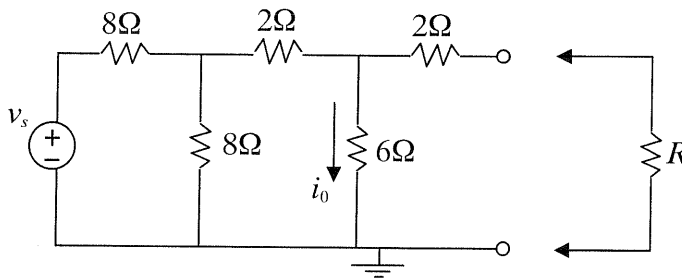
（考生填寫）
准考證號碼：

電 路 學 試 題

《作答注意事項》

1. 請先檢查准考證號碼、座位號碼及答案卷號碼是否相符。
2. 考試時間：80 分鐘。
3. 本試卷共有 5 題，一題 20 分，共計 100 分。
4. 請將答案寫在答案卷上。（限用藍或黑色鋼筆、原子筆作答）
5. 考試中禁止使用大哥大或其他通信設備。
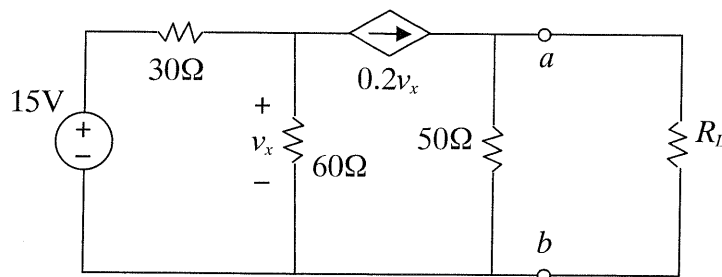6. 考試後，請將試題卷及答案卷一併繳交。
7. 本試卷採雙面影印，請勿漏答。

1. (20%) Under dc condition, determine the load current i_L and the energy stored in the 5mF capacitor.
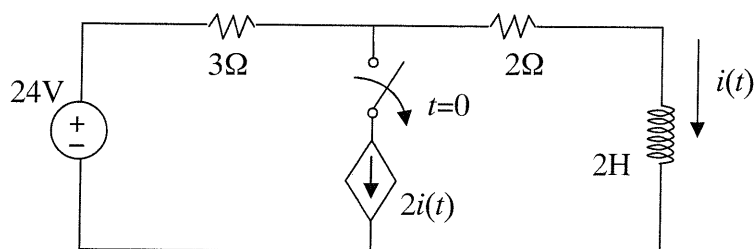

2. (20%) (a) When the load R is not connected, the current through 6Ω resistor is $i_0=1A$. Determine the source voltage v_s. (b) If the load R is connected, what is the maximum power can be transferred to R ?

3. (20%) Find the Norton equivalent circuits with respect to terminals a and b.

4. (20%) Suppose that the switch has been closed for a long time and is opened at $t=0$. Determine the inductor current $i(t)$ for $t>0$.

5. (20%) Consider the following third-order circuit with input voltage $v(t)$. Write the state equation $\dot{x}(t) = A x(t) + b v(t)$, where $x(t) = [x_1(t)\ x_2(t)\ x_3(t)]^T$ contains three state variables $x_1(t)$, $x_2(t)$ and $x_3(t)$ shown in the circuit.