

國立臺北科技大學九十七學年度碩士班招生考試

系所組別：2120 電機工程系碩士班乙組

第一節 電路學 試題

填准考證號碼

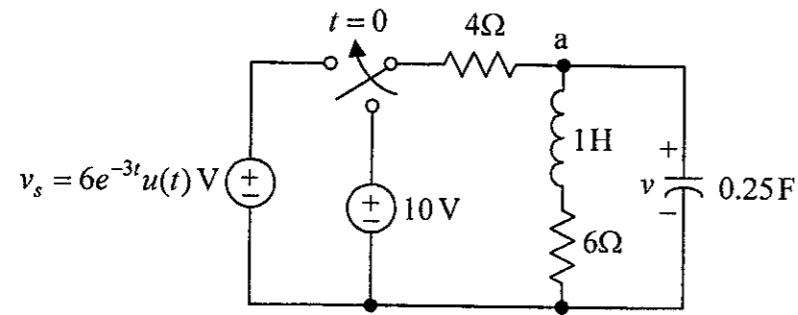
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第一頁 共一頁

注意事項：

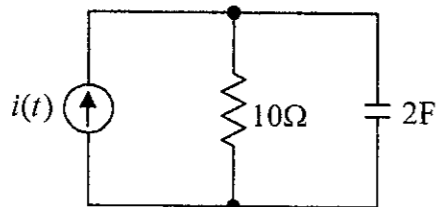
1. 本試題共 5 題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. Find the complete response $v(t)$ for $t > 0$ for the following circuit. Assume the circuit is at steady state at $t = 0$. (20%)

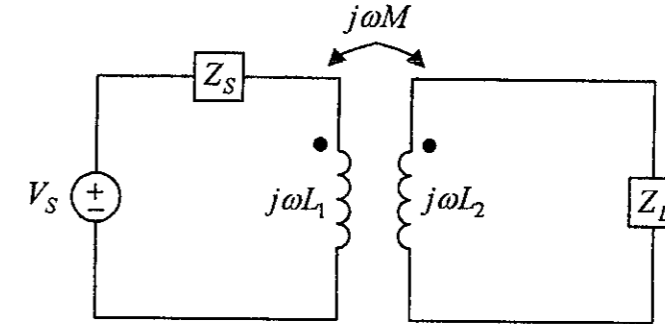


2. Determine the average power supplied to the circuit in the following figure,

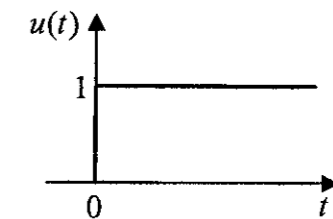
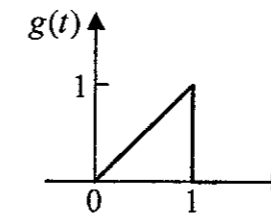
$$i(t) = 2 + 10\cos(t + 10^\circ) + 6\cos(3t + 35^\circ) \text{ A. (20\%)}$$



3. Given the circuit in the following figure with the parameters $Z_S = 3 + j1\Omega$, $j\omega L_1 = j2\Omega$, $j\omega L_2 = j2\Omega$, $j\omega M = j1\Omega$, and $Z_L = 1 - j1\Omega$, determine the impedance seen by the source V_S . (20%)



4. Convolve $g(t)$ and $u(t)$ shown in the following figure. That is to say, find $y(t)$ with $y(t) = g(t) * u(t)$. (20%)



5. Compute the y-parameters of the circuit in the following figure. (20%)

