

國立臺北科技大學九十九學年度碩士班招生考試

系所組別：1523 自動化科技研究所乙組

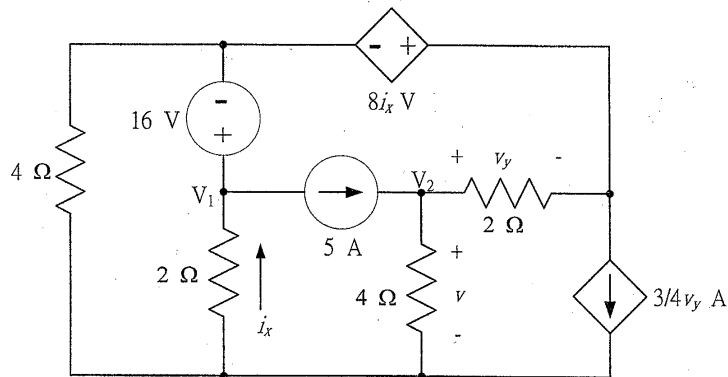
第二節 電路學 試題 (選考)

第一頁 共二頁

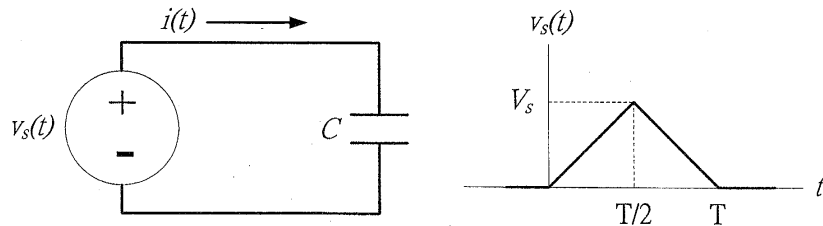
注意事項：

1. 本試題共八題，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。

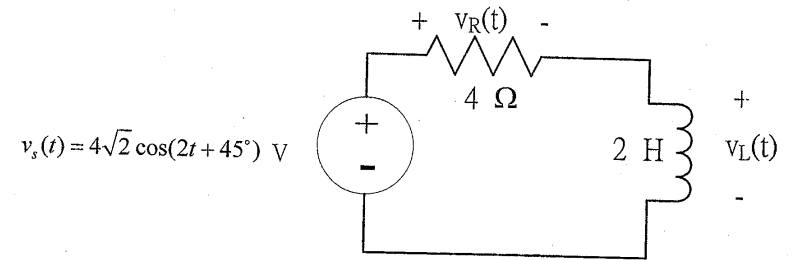
1. Find the value of v for the following circuit using nodal analysis. (20%)



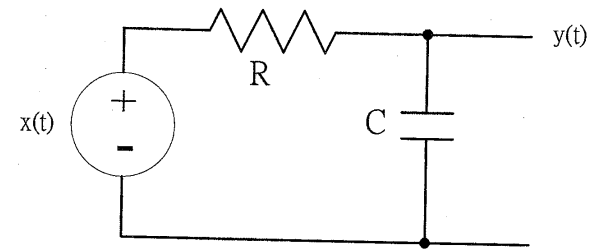
2. Sketch the current waveform and the waveforms for the power and energy absorbed by the capacitor for the circuit shown below. (3%+3%+4%=10%)



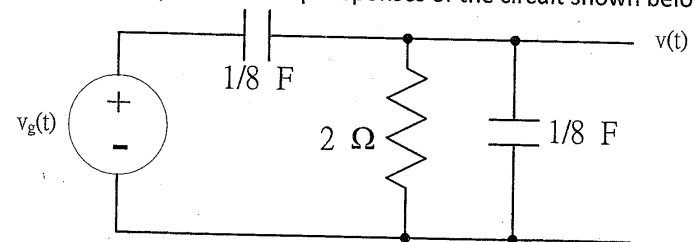
3. Find $V_L(t)$ and $V_R(t)$ for the circuit shown below using phasor analysis. (10%)



4. Show that the following circuit is a low pass filter. (10%)

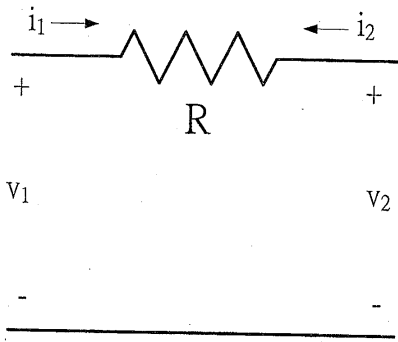


5. Find the impulse and step responses of the circuit shown below. (20%)

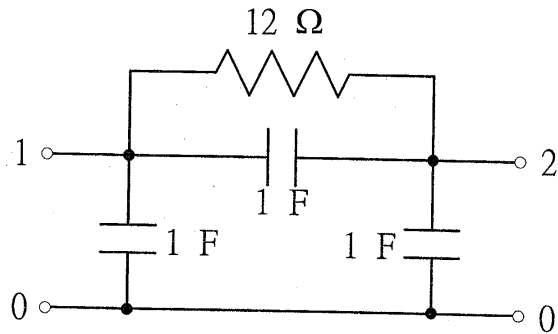


注意：背面尚有試題

6. Find the y parameters of the circuit shown below. (5%)



7. Find the tee equivalent for the circuit shown below. (10%)



8. In the circuit shown below, the value of load resistance, R , is chosen so that the load power dissipation is maximized.

- Determine the Thevenin equivalent of the network to which the load resistance R is connected. (10%)
- Calculate the value of R to maximize the load power dissipation and the value of the maximum load power. (5%)

