淡江大學 97 學年度轉學生招生考試試題

系別：電機工程學系三年級　　科目：電　路　學

可否使用計算機			
可	✓	否	

本試題共 四 大題，一 頁

1. (Fig. 1) The switch has been closed for a long time, and is opened at $t = 0$. Find $v(t)$ for $t > 0$. (25%)

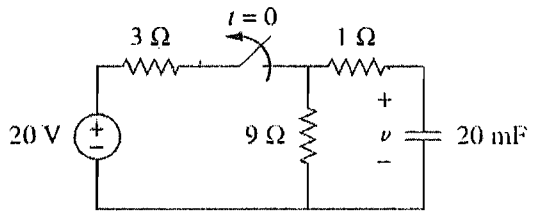

Fig. 1

2. (Fig. 2) If the input pulse in Fig. 2(a) is applied to the circuit in Fig. 2(b), find the response $i(t)$. (25%)

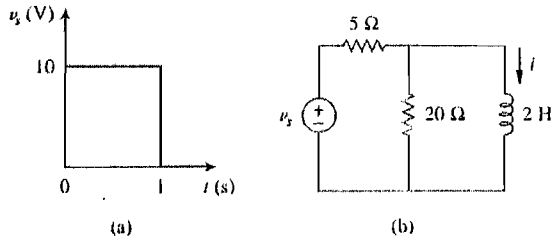

Fig. 2

3. (Fig. 3) In the op amp circuit, $v_s = 4u(t)$, where $u(t)$ is an unit-step function, find $v_o(t)$ for $t > 0$. Assume that $R_1 = R_2 = 10\ \text{k}\Omega$, $C_1 = 20\ \mu\text{F}$, and $C_2 = 100\ \mu\text{F}$. (25%)

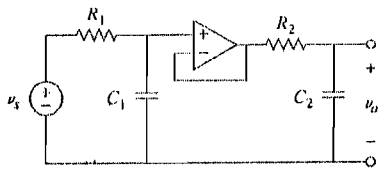

Fig. 3

4. (Fig. 4) (a) Obtain the transfer function $\mathbf{H}(\omega) = \mathbf{V}_o/\mathbf{V}_i$. where $\mathbf{V}_o$ and $\mathbf{V}_i$ are phasor of v_o and v_i, respectively.

   (b) Plot the magnitude and phase of $\mathbf{H}(\omega)$ versus ω, respectively. (25%)

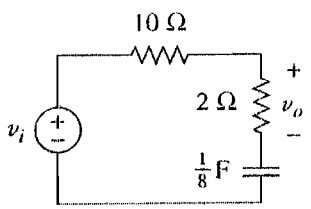

Fig. 4