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國立臺北科技大學

九十七學年度四年制二、三年級轉學生招生考試

系所組別：四技三年級電機工程系

第三節 專業科目（二）電路學 試題

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. In the balanced three-phase system shown in Fig.1, the line voltage is 34.5kV rms at 60Hz. We wish to find the values of the capacitors C such that the total load has a power factor of 0.94 leading (10%)

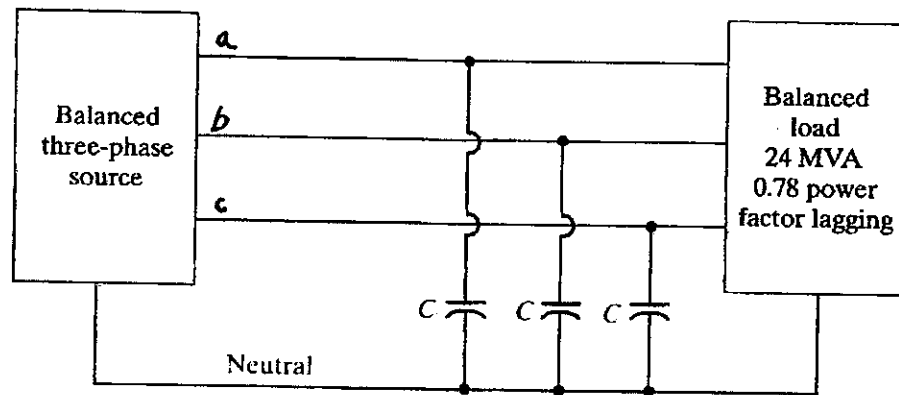


Fig.1

2. Consider the circuit shown in Fig.2, (15%)

- (a) Find the value C to place the circuit in resonance at 1800 rad/sec (10%)
- (b) After you obtain the C, determine the Q of the network. (5%)

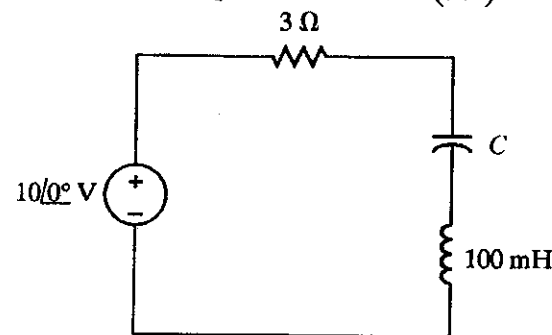


Fig.2

3. Consider the circuit in Fig.3, (15%)

- (a) Find the value of Z_L for maximum average power transfer (10%)
- (b) Find the value of the maximum average power delivered to the load. (5%)

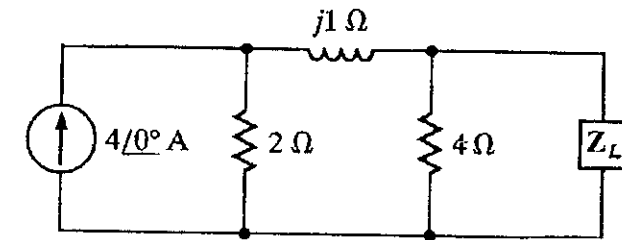


Fig.3

4. Determine the hybrid parameters of the circuit in Fig.4. (10%)

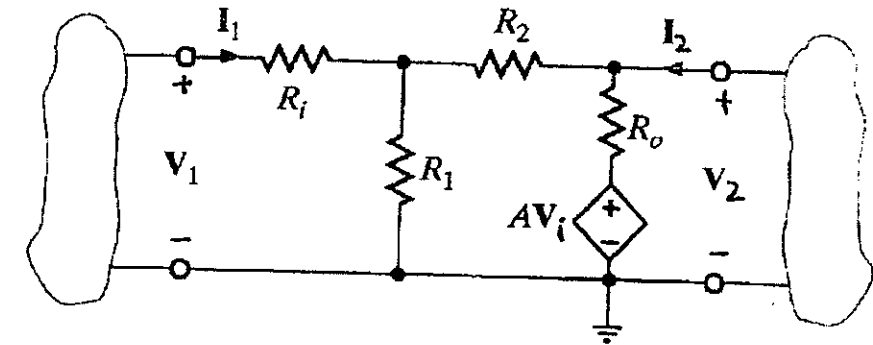


Fig.4

5. Consider the circuit shown in Fig.5. Assume that the network is in steady state prior to $t=0$. Find the current $i(t)$ for $t>0$. (10%)

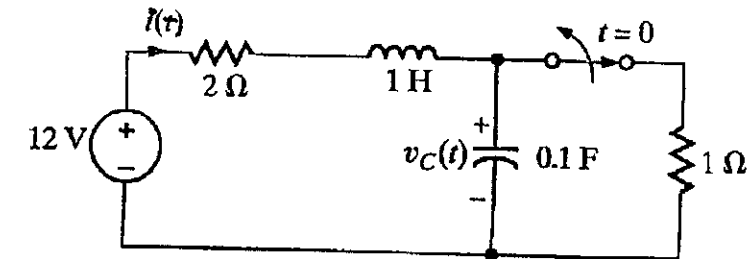


Fig.5

6. (20%)

- (a) Use Thevenin's theorem to find V_o of the circuit in Fig.6a. (10%)

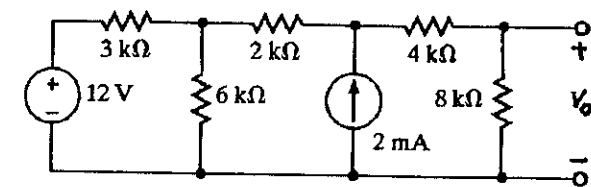


Fig.6a

- (b). Use superposition to find V_o in Fig.6b. (10%)

注意：背面尚有試題

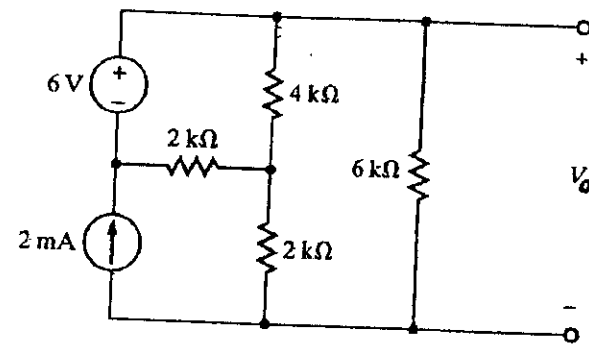


Fig. 6b

7. Consider the circuit shown in Fig. 7, obtain the current I_1 . (10%)

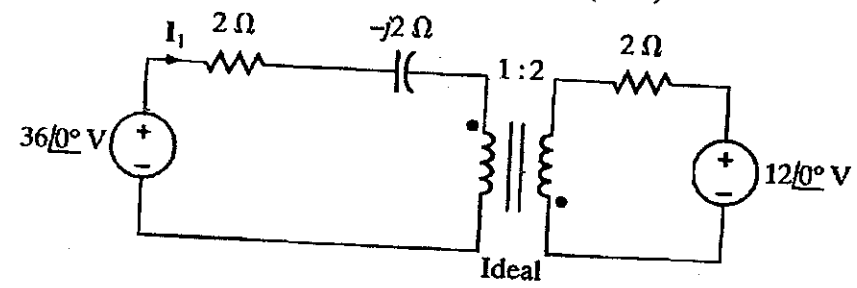


Fig. 7

8. Consider the circuit shown in Fig. 8, obtain the average power supplied by the source. (10%)

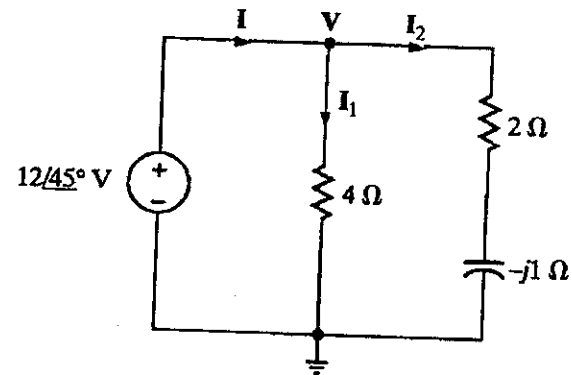


Fig. 8