

1. Find the i_1, i_2 for the network of Fig.1
2. Find the v_1, v_2 and v_3 for the network of Fig.2
3. Find the I_2 if $I_1 = 3A$ for the network of Fig.3
4. Find the i for the network of Fig.4
5. Find the R_{eq} and i_1 if $i = 6A$ for the network of Fig.5
6. Find the I for the network of Fig.6
7. Find the I for the network of Fig.7
8. Find the v for the network of Fig.8
9. Find the v for the network of Fig.9
10. Find the R_{eq} for the network of Fig.10
11. Find the R for the network of Fig.11

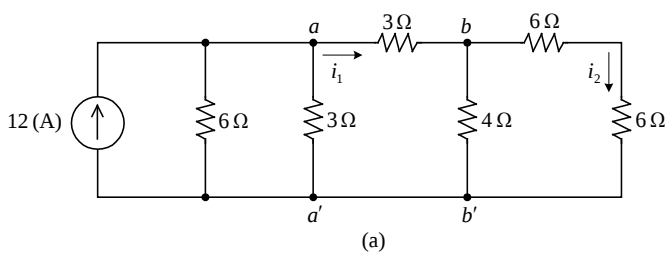


Fig.1

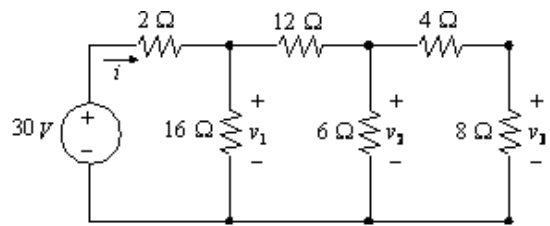


Fig.2

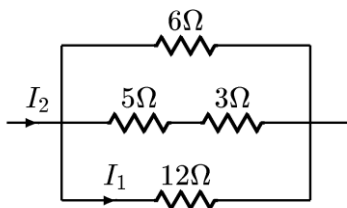


Fig. 3

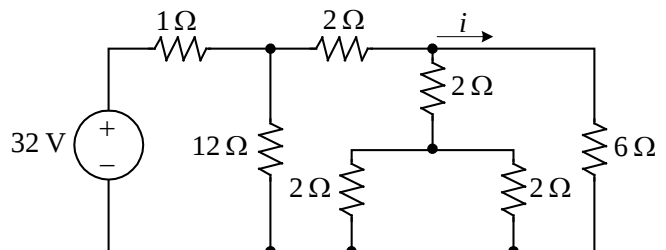


Fig. 4

P. 2

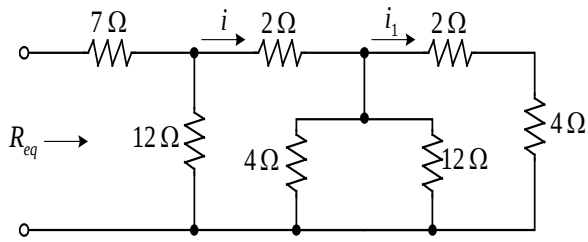
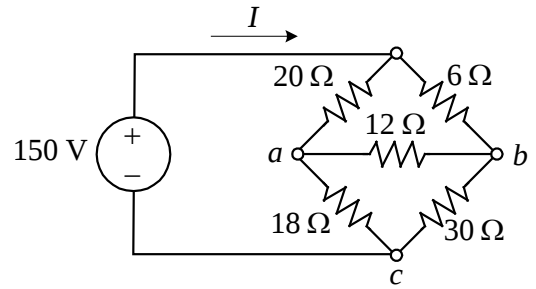


Fig.5



(a)

Fig.6

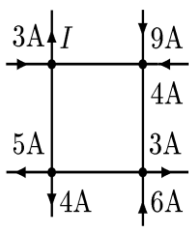


Fig.7

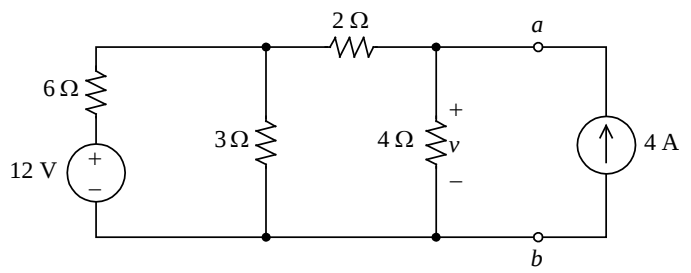


Fig.8

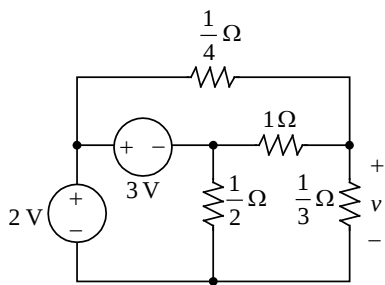


Fig.9

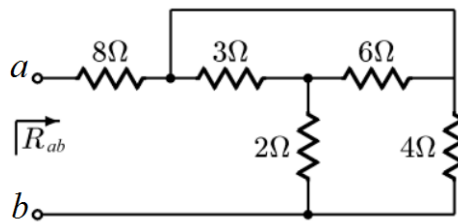


Fig.10

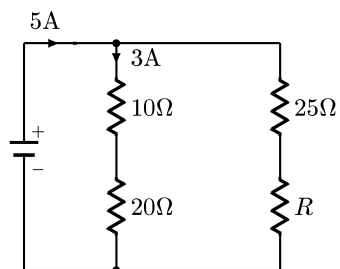


Fig.11

1. Find the i , i_2 and V_1 for the network of Fig.1
2. Find the i for the network of Fig.2
3. Find the I_2 if $I_1 = 3A$ for the network of Fig.3
4. Find the V_o for the network of Fig.4
5. Find the R for the network of Fig.5
6. Find the I for the network of Fig.6
7. Find the V for the network of Fig.7
8. Find the i for the network of Fig.8
9. Find the R_1 and R_2 for the network of Fig.9
10. Find the R_{eq} for the network of Fig.10
11. Find the R for the network of Fig.11

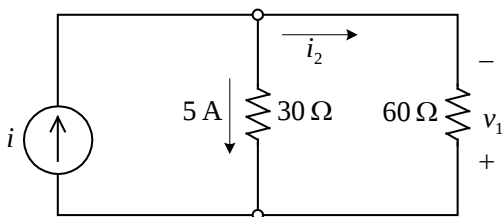


Fig.1

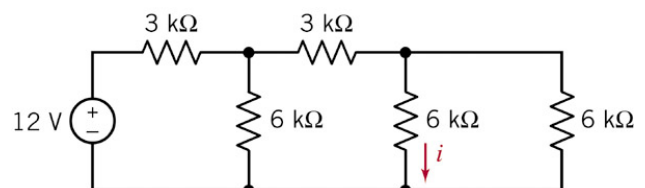


Fig.2

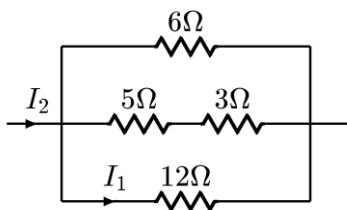


Fig. 3

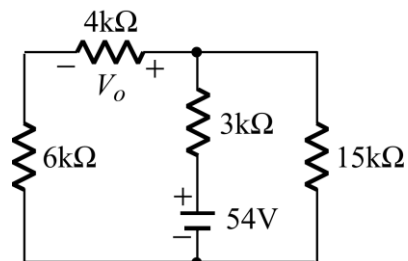


Fig. 4

P. 2

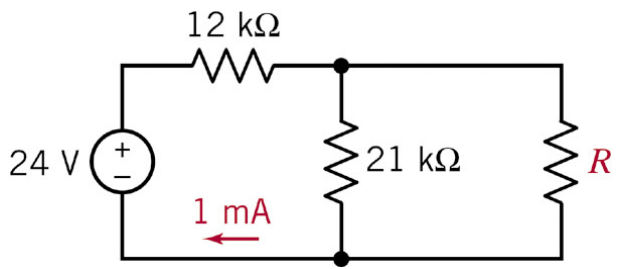


Fig.5

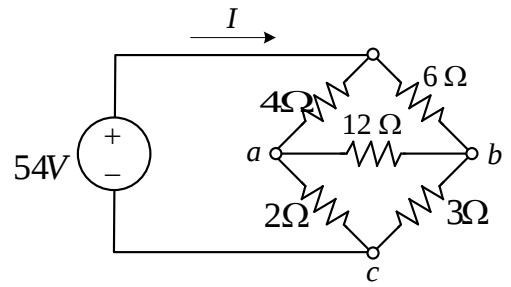


Fig.6

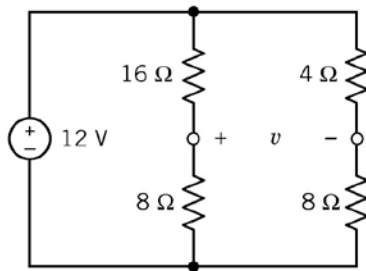


Fig.7

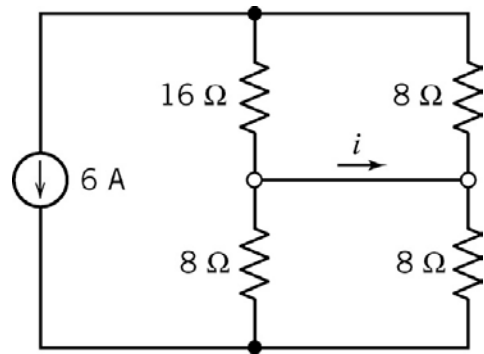


Fig.8

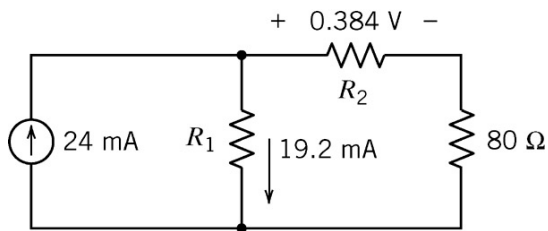


Fig.9

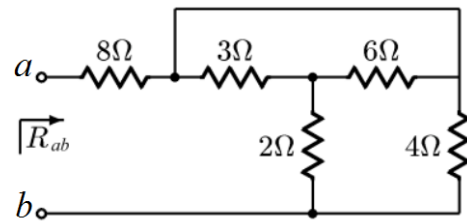


Fig.10

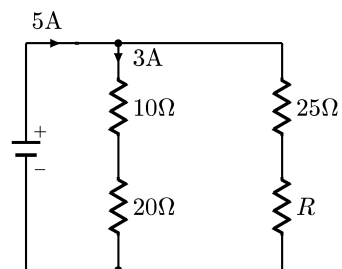


Fig.11

國立虎尾科技大學 105 學年度第一學期博士班資格考

試題

系別：動力機械系機械與機電工程博士班

第 1 頁

共 2 頁

科目：電路學

注意事項：

- (1) 本試題共有 7 題，每題 15 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 open book

1. Find the I for the network of Fig.1

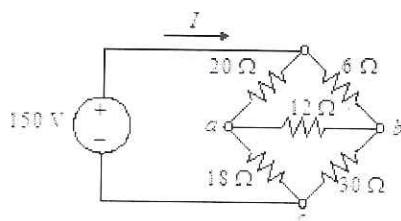


Fig.1

2. Find the i for the network of Fig.2

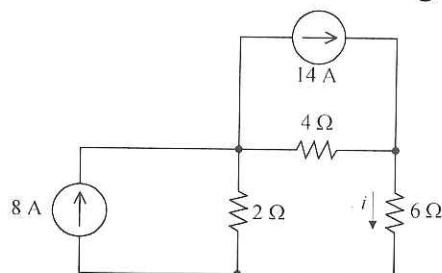


Fig.2

3. If $V=36V$, Find the i for the network of Fig.3

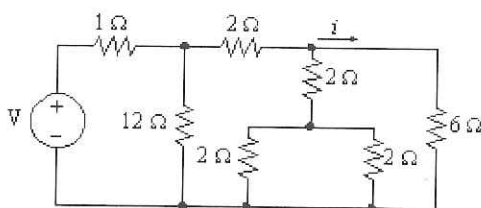


Fig.3

4. If $R=5\Omega$, Find the I through the R for the network of Fig.4

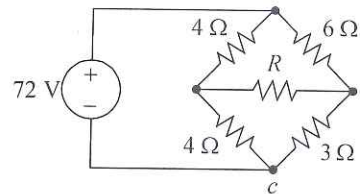


Fig.4

5. Find the i for the network of Fig.5

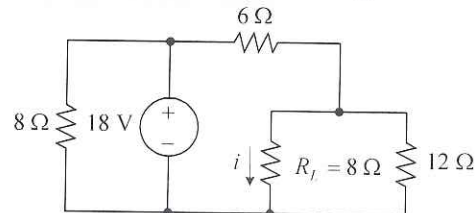


Fig.5

6. Find the I and R for the network of Fig.6

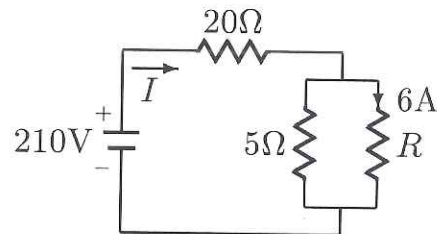


Fig.6

7. If $i(0^-)=2\text{ A}$, Find the $i(t)$ of $t > 0$ for the network of Fig.7

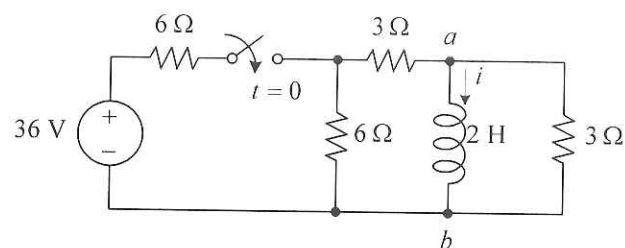


Fig.7

國立虎尾科技大學 105 學年度第二學期博士班資格考試題

系別：動力機械系機械與機電工程博士班

科目：電路學

注意事項：

- (1) 本試題共有 7 題，每題 15 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 close-book exam

1. Find the i_1 與 i_2 for the network of Fig.1

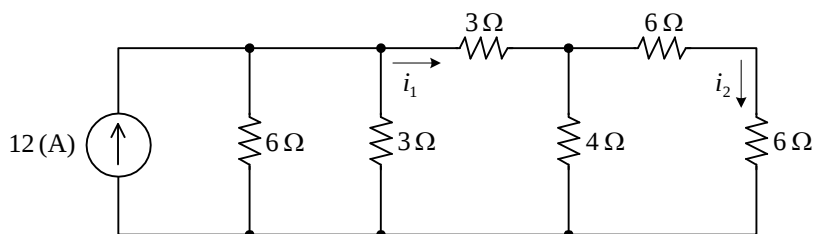


Fig.1

2. Find the R_{eq} and i_1 when $i=6A$ for the network of Fig.2

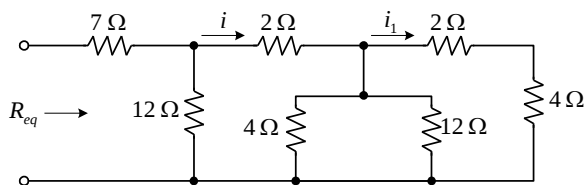
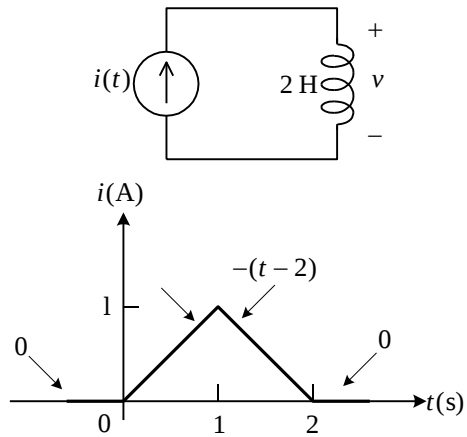


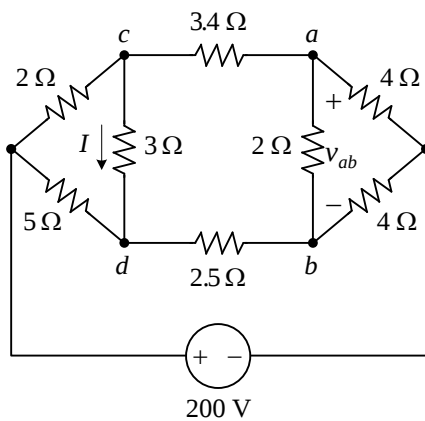
Fig.2

3. Find the v for the network of Fig.3

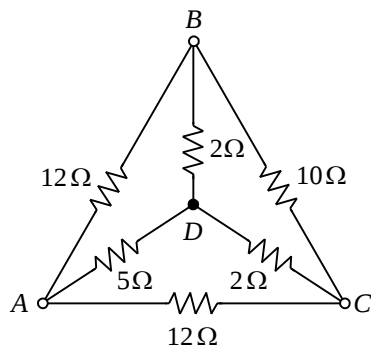
$$i(t) = \begin{cases} 0 & , -\infty < t < 0 \\ t & , 0 \leq t < 1 \\ -(t-2) & , 1 \leq t < 2 \\ 0 & , 2 \leq t < \infty \end{cases}$$



4. Find the I and v_{ab} for the network of Fig.4



5. Find the R from A-C terminal for the network of Fig.5



6. Find $v(t)$ of $t > 0$ if $v(0^-) = 15(V)$ for the network of Fig.6

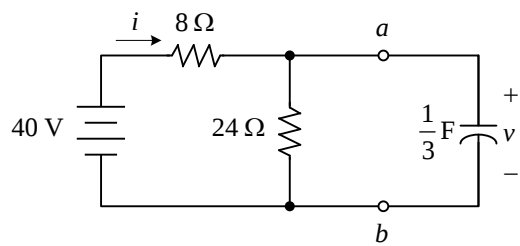


Fig.6

7. Find the v for the network of Fig.7

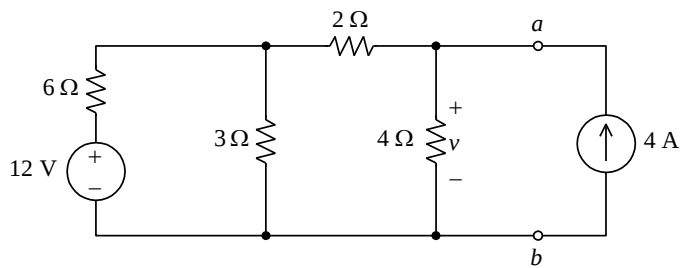


Fig.7

國立虎尾科技大學 106 學年度第一學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

第 1 頁 共 2 頁

科目：電路學

注意事項：

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- (3) 可使用計算機 close book

1. Find the V_1 、 V_3 and V_{ab} for the network of Fig.1

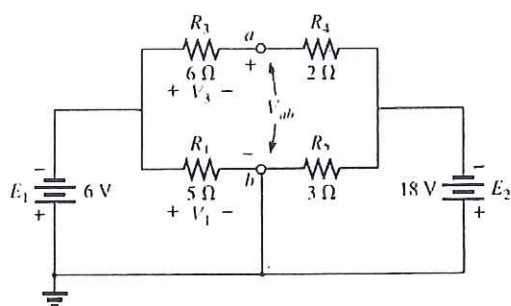


Fig.1

② Calculate the indicated currents and voltage for the network of Fig.2

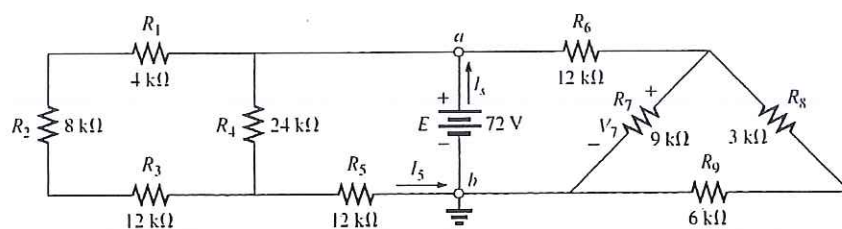


Fig.2

③ Find the i for the network of Fig.3

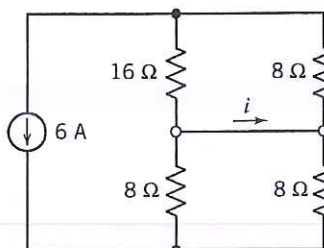


Fig.3

4. Find the v for the network of Fig.4

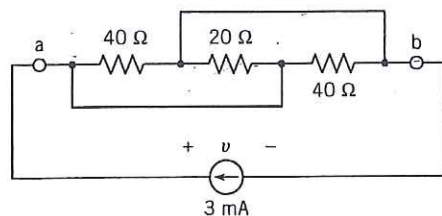


Fig.4

5. Find the R , given that $R_{eq} = 9 \Omega$ for the network of Fig.5

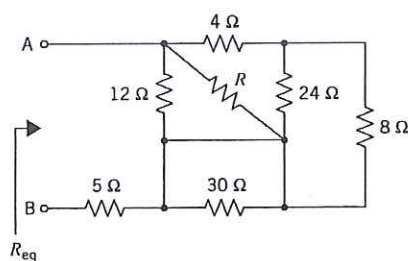


Fig.5

6. Find the R for the network of Fig.6

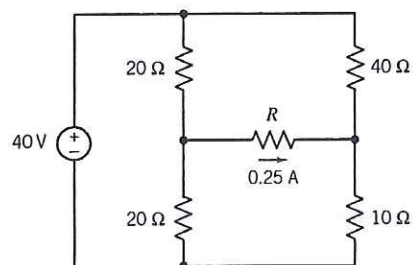


Fig.6

7. Find the v_1 , v_2 and i_a , i_b for the network of Fig.7

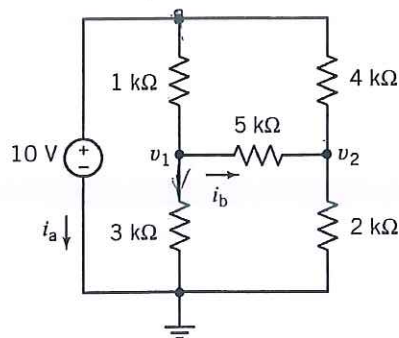


Fig.7

國立虎尾科技大學 106 學年度第二學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

第 1 頁 共 3 頁

科目：電路學

注意事項：

- (1) 本試題共有 7 題，任選 5 題作答，每題 20 分，合計一百分。
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- (3) 可使用計算機 close book

1. Find the indicated currents for the network of Fig.1

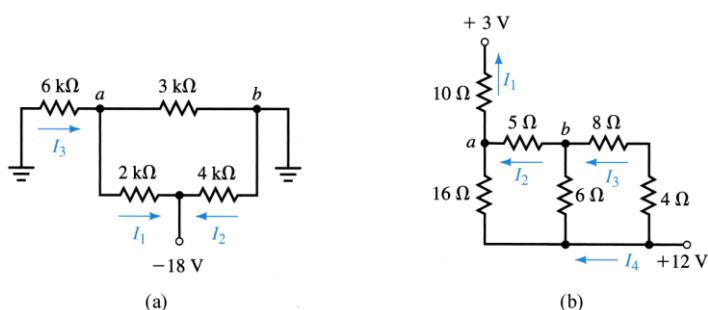


Fig.1

2. Find the R_{ab} and R_{bc} for the network of Fig.2

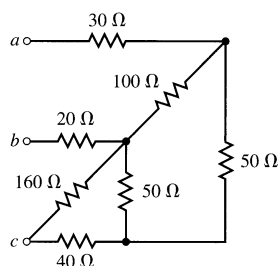


Fig.2

3. Find the indicated currents for the network of Fig.3

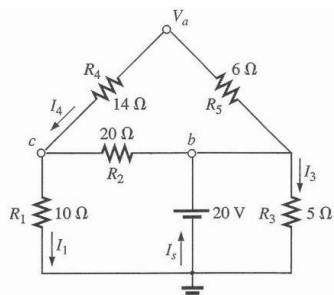


Fig.3

4. Find the I for the network of Fig.4

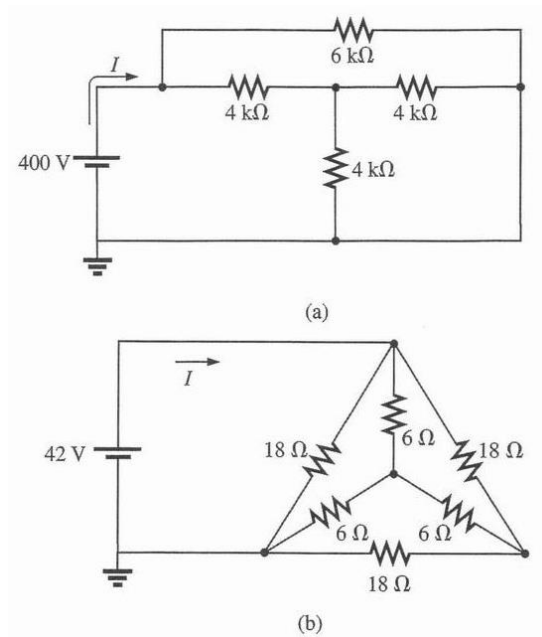


Fig.4

5. Find the I_{R_1} through R_1 for the network of Fig.5

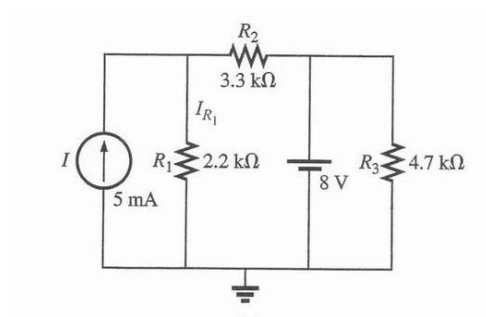


Fig.5

6. Find the v_1 for the network of Fig.6

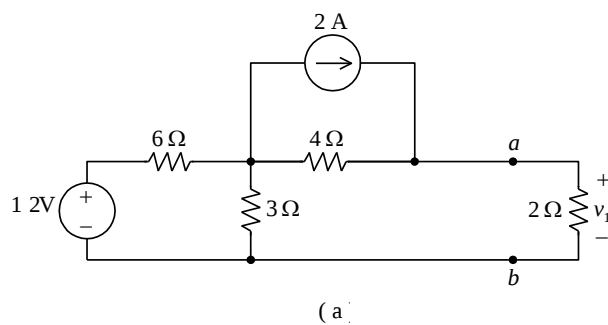


Fig.6

7. Find the v if $R_L = \frac{1}{3} \Omega$ for the network of Fig.7

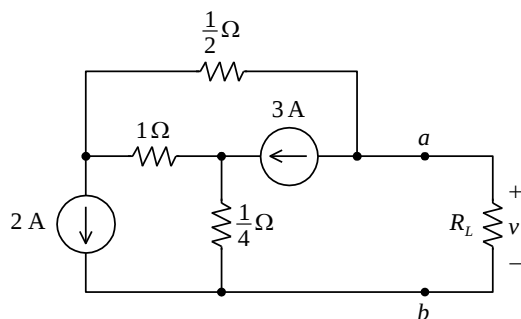


Fig.7

國立虎尾科技大學 107 學年度第一學期博士班資格考試題

系別：動力機械系機械與機電工程博士班

科目：電路學

注意事項：

- (1) 本試題共有 8 題，答對每題 15 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 close-book exam

1. Determine the values of R_1 , R_2 and R_3 in Fig. 1 if $R_2 = 2R_1$, $R_3 = 2R_2$ and the total resistance is $16\text{k}\Omega$.

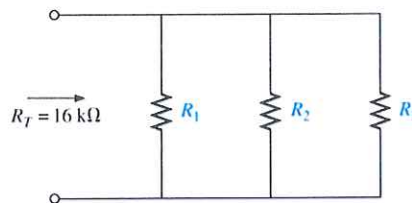


Fig. 1

2. Find the I for the network of Fig. 2

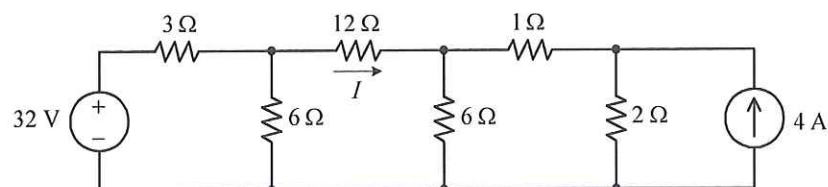


Fig. 2

3. Find the I for the network of Fig. 3

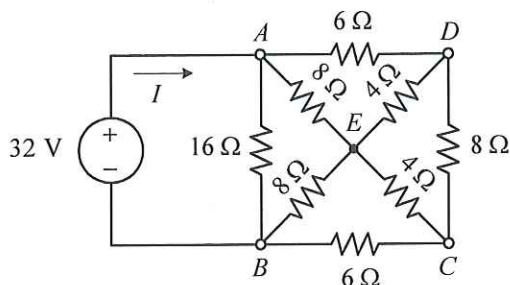


Fig. 3

4. Find the Current flow the R of Fig. 4 ($R=5\Omega$)

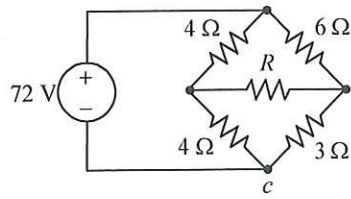


Fig.4

5. if $v(0) = 0$, find the $v(t)$ and $i(t)$ when $t > 0$ of Fig.5

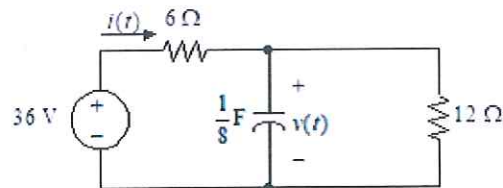


Fig.5

6. if $i(0^-) = 2\text{ A}$, find the $i(t)$ when $t > 0$ of Fig.6

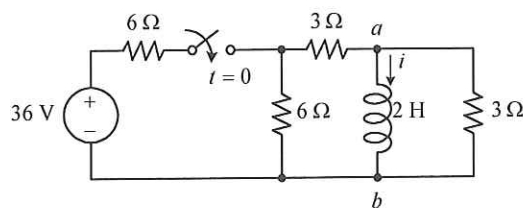
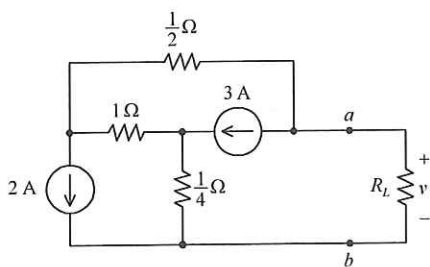


Fig.6

7. Find v when $R_L = \frac{1}{3}\Omega$ of Fig.7



8. Find the I for the network of Fig.8

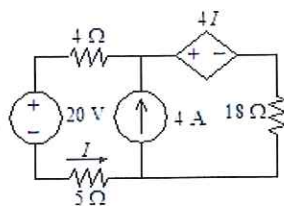


Fig.8

國立虎尾科技大學 108 學年度第一學期博士班資格考試題

系別：動力機械系機械與機電工程博士班

科目：電路學

注意事項：

- (1) 本試題共有 10 題，答對每題 10 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 close-book exam

1. Determine the values of V .

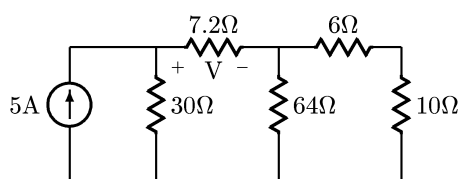


Fig. 1

2. Find the I for the network of Fig. 2

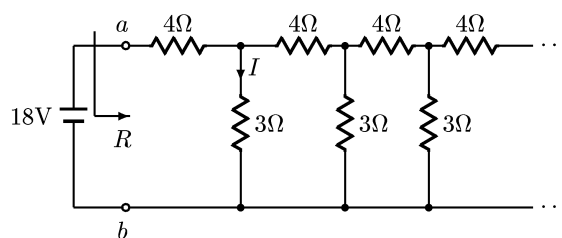


Fig. 2

3. If $V_A = -60V$, Find the V_3 and R_1 for the network of Fig. 3

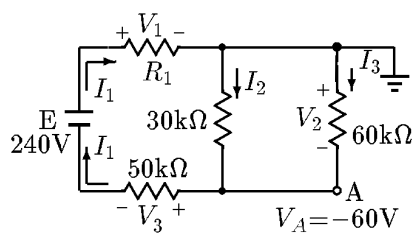


Fig. 3

4. Find the Current flow the $\textcircled{A}$ and E of Fig.4

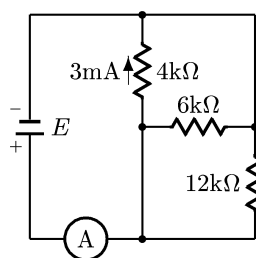


Fig.4

5. Find the V_{ab} of Fig.5

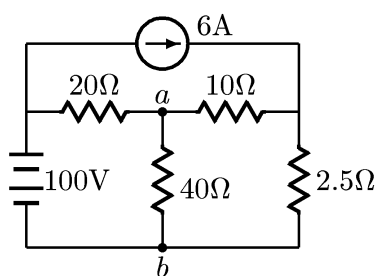


Fig.5

6. Find the V_{AB} of Fig.6

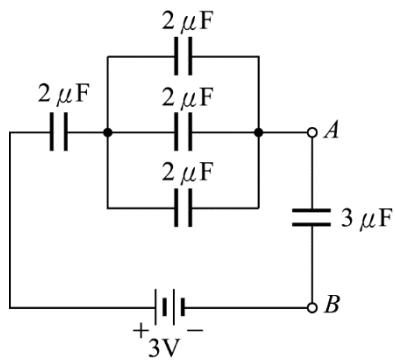


Fig.6

7. If $v(0^-) = 0V$, find the I when $t > 0$ of Fig.7

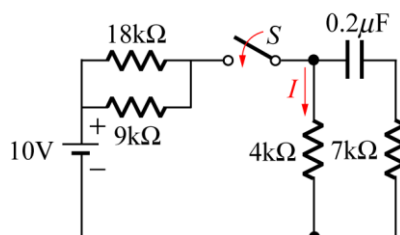


Fig.7

8. If S is opened when $t=0$, find the V_L when $t=0.2$ of Fig.8

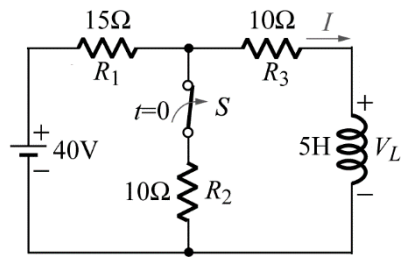


Fig.8

9. Find the I for the network of Fig.9

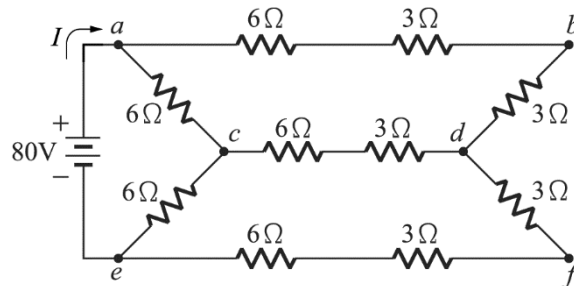


Fig.9

10. Find the values of R for maximum power transfer to R for the Fig. 10

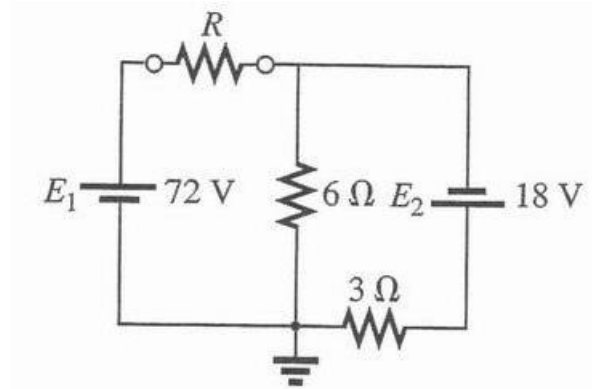


Fig.10

國立虎尾科技大學 108 學年度第 2 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

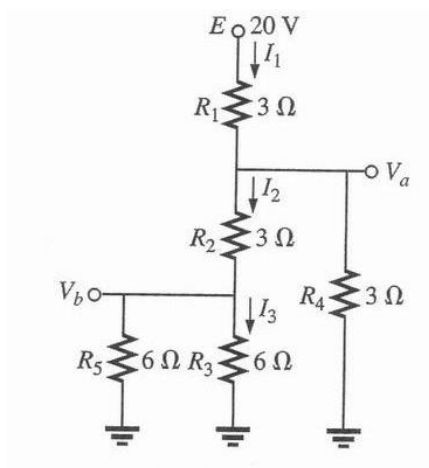
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科目：電路學

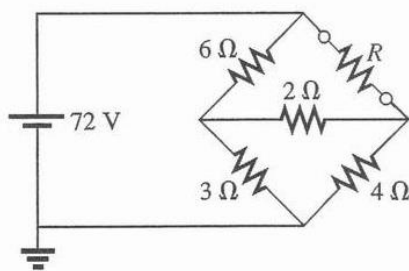
注意事項：

- (1) 本試題共有 11 題，任選 10 題作答，每題 10 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 close book

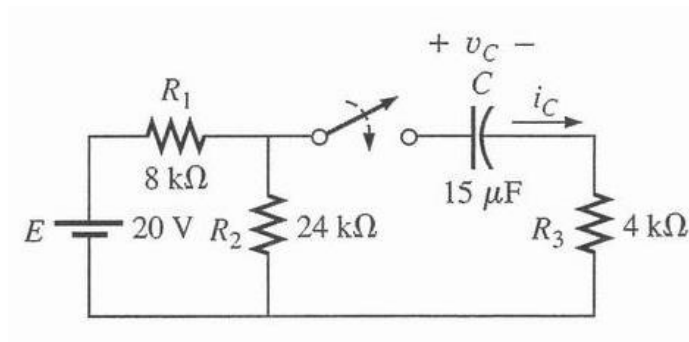
1. Find I_1 , I_2 , I_3 , V_a , V_b



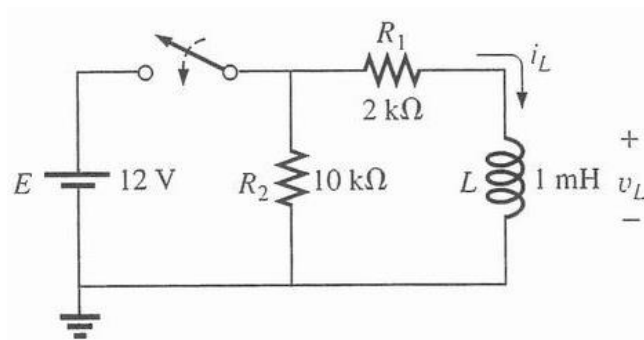
2. Find the current through R If $R=5\Omega$



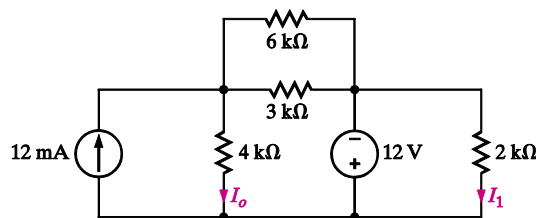
3. Find the mathematical expressions for the transient behavior of the v_c and i_c following the closed of the switch..



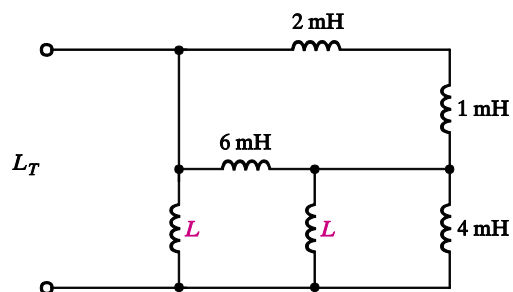
4. a. Determine the time constant.
 b. Write the mathematical expressions for the v_L and i_L when the switch is closed.



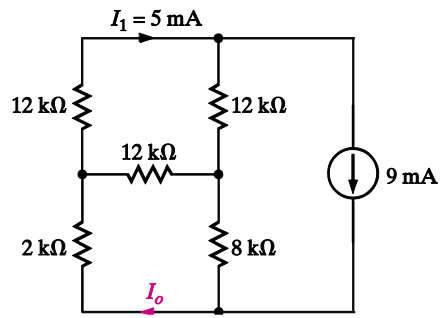
5. Find I_o and I_1



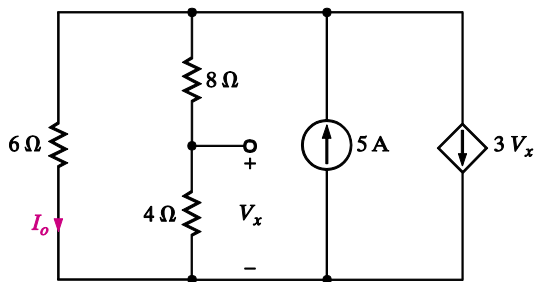
6. Find L if $L_T = 2 \text{ mH}$



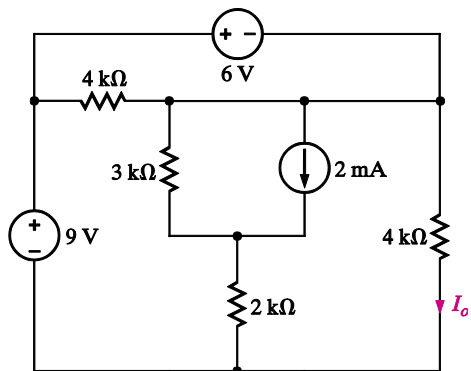
7. Find I_o



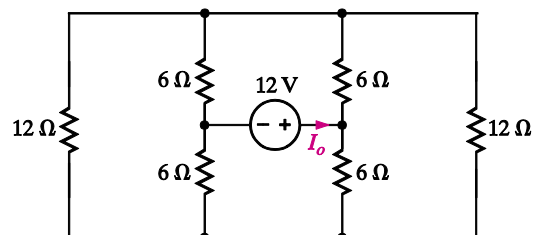
8. Find I_o



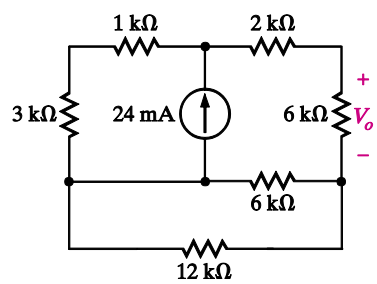
9. Find I_o



10. Find I_o



11. Find V_o



國立虎尾科技大學 109 學年度第 1 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

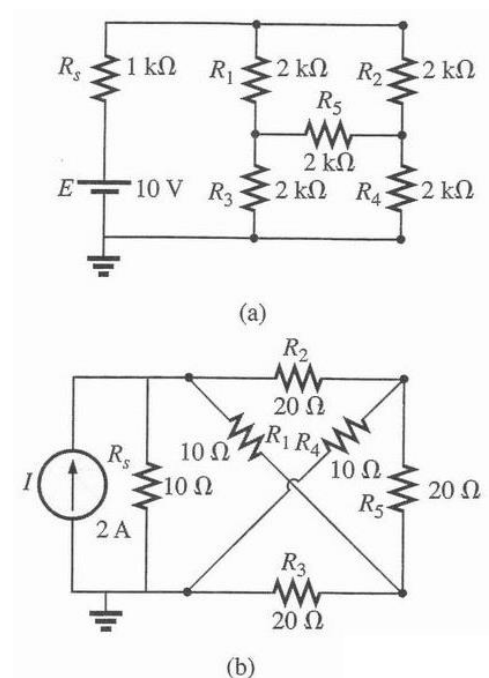
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科目：電路學

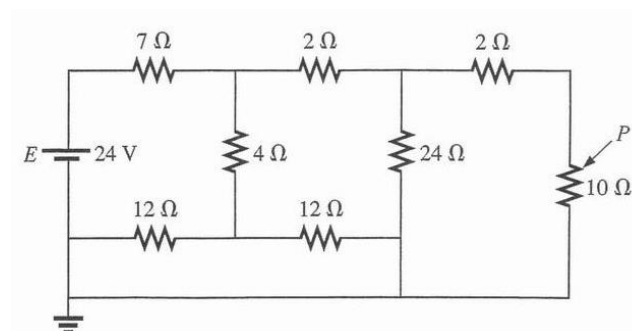
注意事項：

- (1) 本試題共有 10 題，每題 10 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 close book

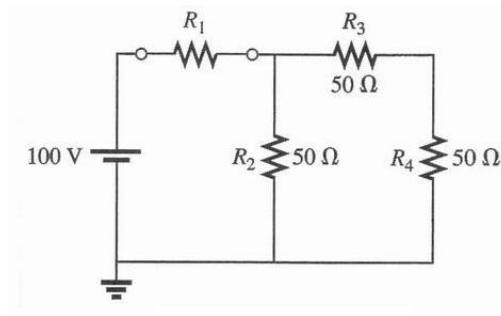
1. Find the current through the R_s



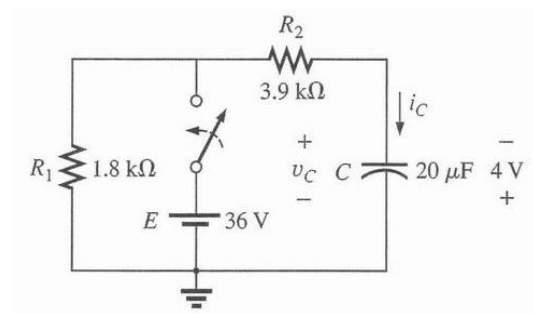
2. Find the power P from 10 Ω



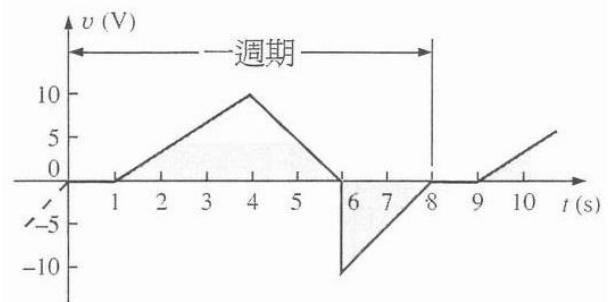
3. Find R_1 such that the R_4 will receive maximum power



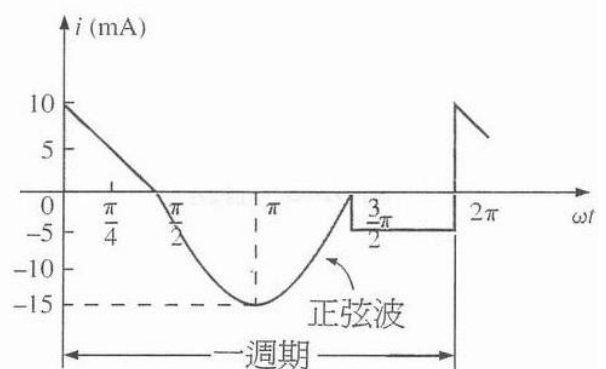
4. The C is initially charged to 4V with the polarity shown. Write the mathematical expressions for the v_C and i_C when the switch is closed.



5. Find the average value of the periodic waveform in Fig. over one full cycle.

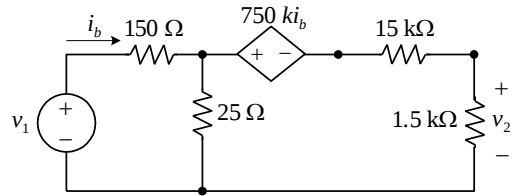


(a)

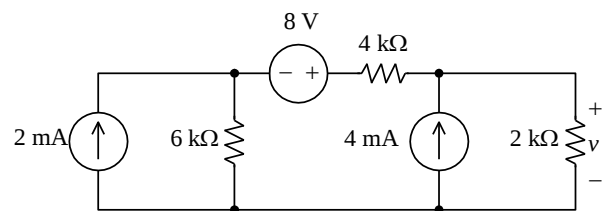


(b)

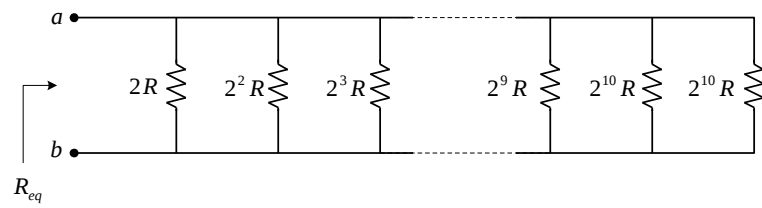
6. Find $\frac{v_2}{v_1}$



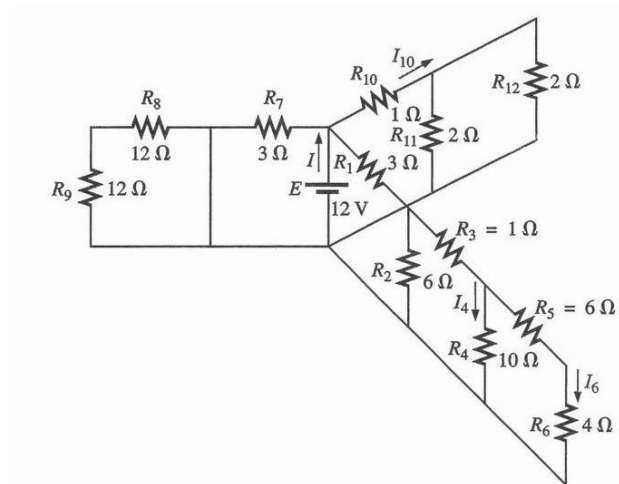
7. Find v



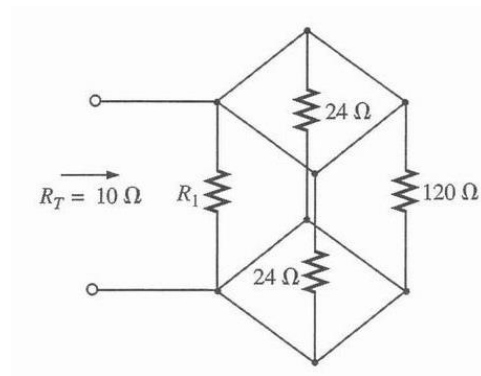
8. Find R_{eq}



9. Find I and I_4



10. Find R_1



國立虎尾科技大學 109 學年度第 2 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

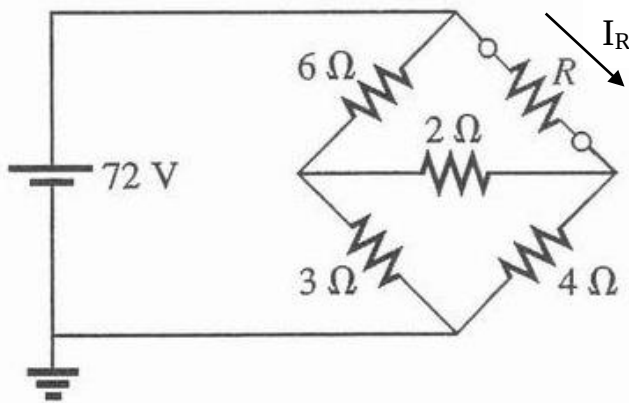
第 1 頁 共 2 頁

科目：電路學

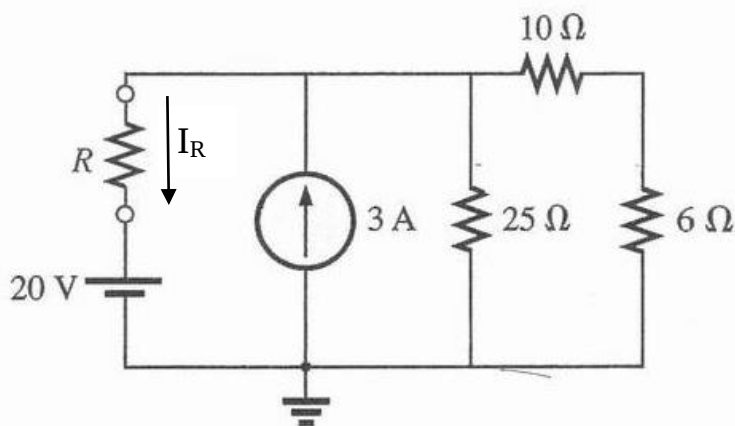
注意事項：

- (1) 本試題共有 5 題，每題 20 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 close book and use calculator

1. Find the current (I_R) through R , If $R=5\Omega$



2. Find the current (I_R) through R , If $R=5\Omega$



3. Use mesh equations to find V_o in the circuit in Fig. 1.

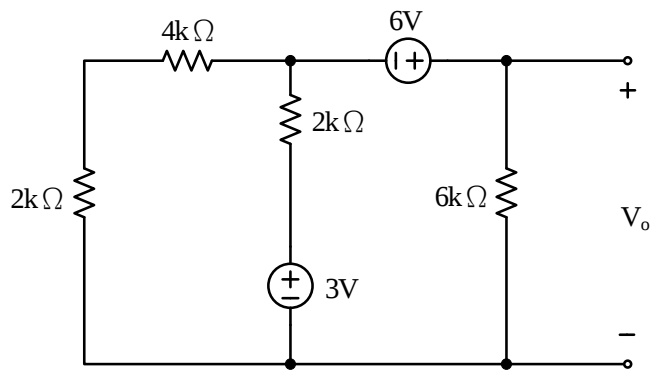


Fig.1

4. Let us find I_o in the network in Fig. 2.

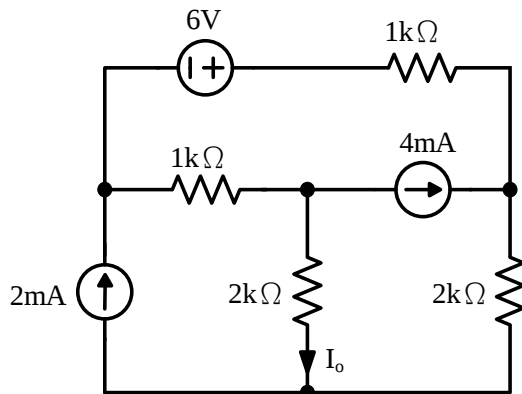


Fig.2

5. Find R_L for maximum transfer and the maximum power transferred to R_L in Fig.3

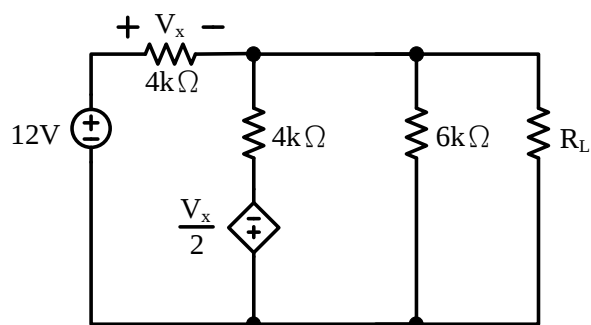


Fig.3

國立虎尾科技大學 110 學年度第 1 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

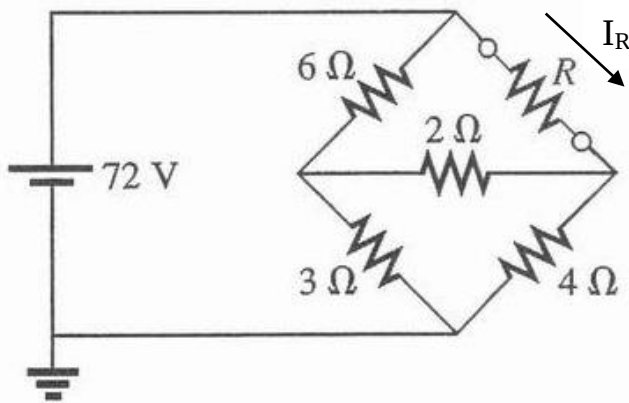
Page 1 / 2

科目：電路學 Electric Circuit Theory

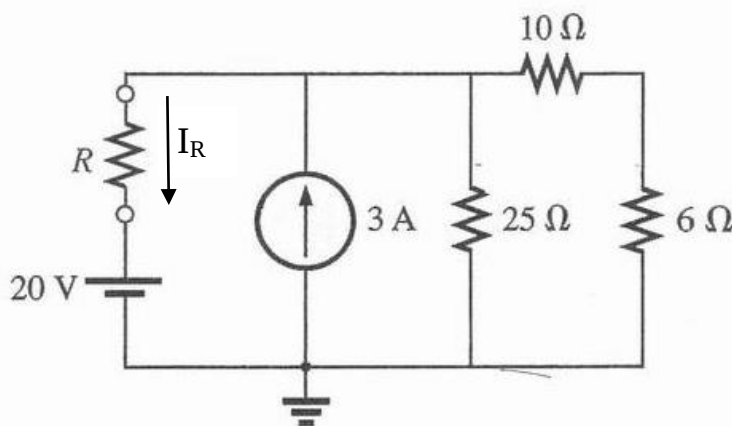
注意事項：

- (1) 本試題共有 5 題，每題 20 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 **close book and use calculator**

1. Find the current (I_R) through R , If $R=5\Omega$



2. Find the current (I_R) through R , If $R=5\Omega$



3. Find the node voltages, V_1 and V_2 , in the circuit in Fig. 1.

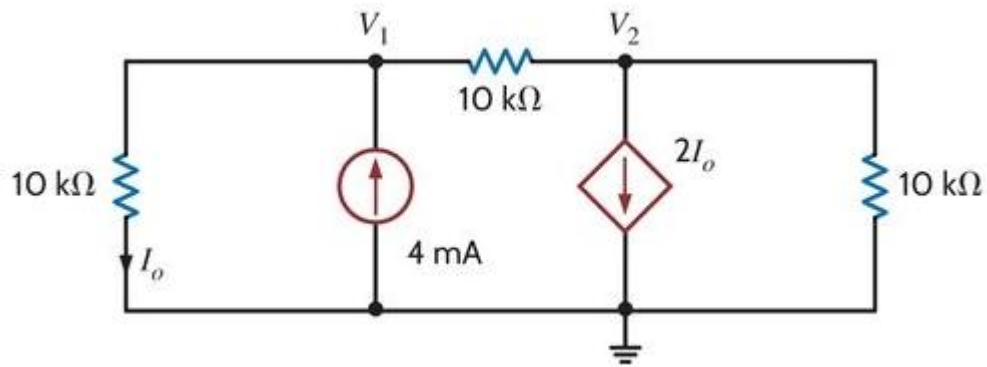


Fig.1

4. Find V_o in the network in Fig. 2.

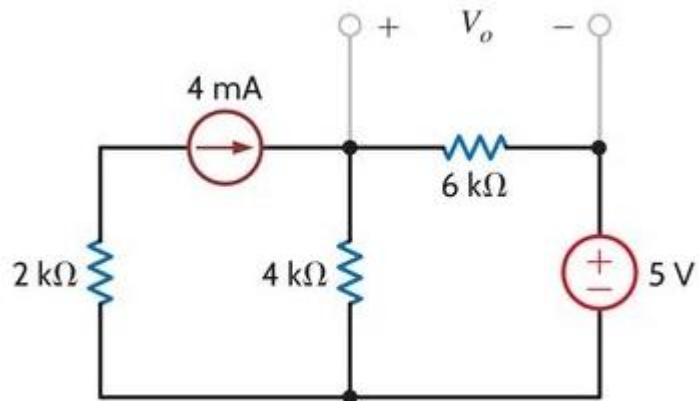


Fig. 2

5. Find V_o in the circuit in Fig. 3 using Thévenin's theorem.

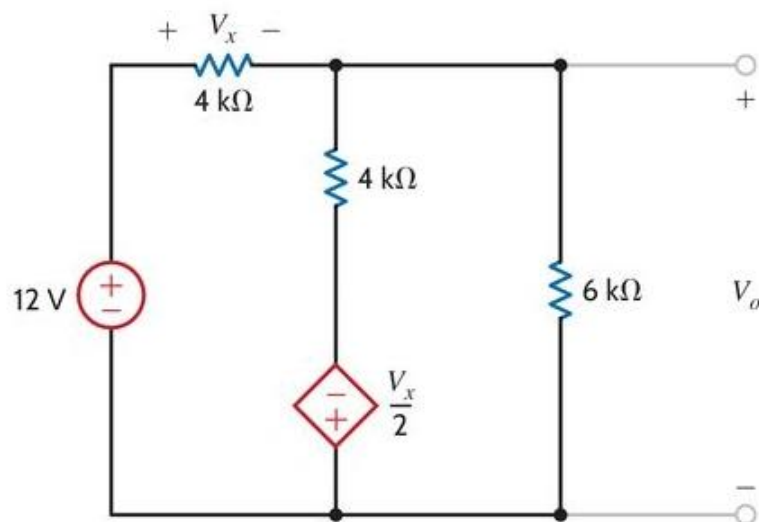


Fig. 3

國立虎尾科技大學 110 學年度第 2 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

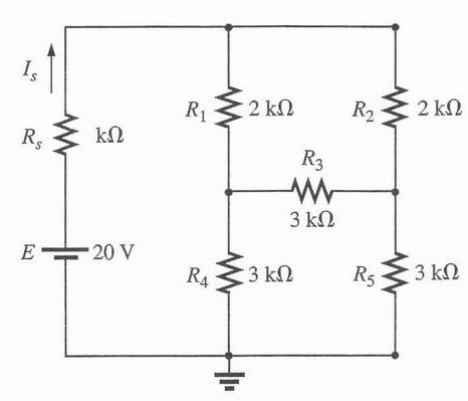
第 1 頁 共 3 頁

科目：電路學

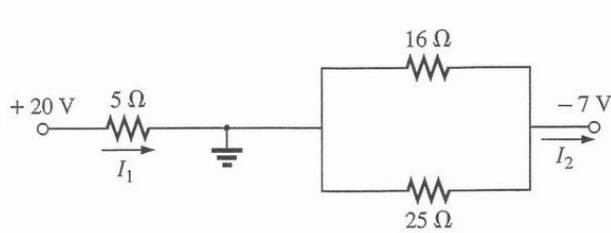
注意事項：

- (1) 本試題共有 10 題，每題 10 分，合計一百分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 可使用計算機 close book

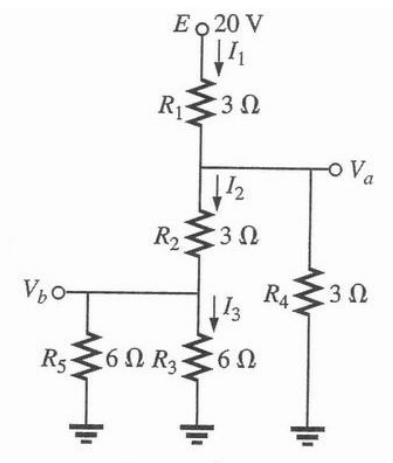
1 Find the I_s



2. Find I_1 and I_2



3 Find I_1 , I_2 , I_3 , V_a , V_b



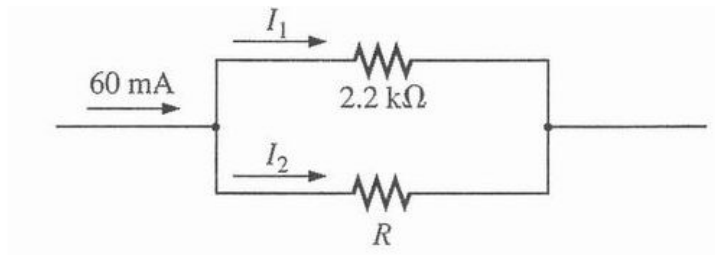
國立虎尾科技大學 110 學年度第 2 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

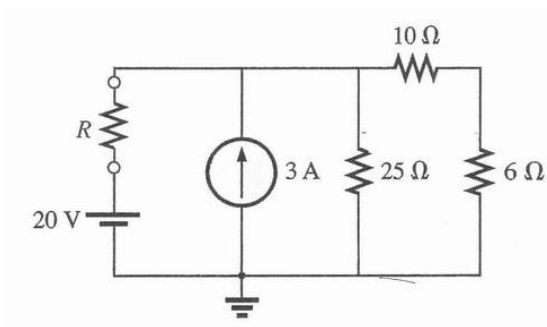
第 2 頁 共 3 頁

科目：電路學

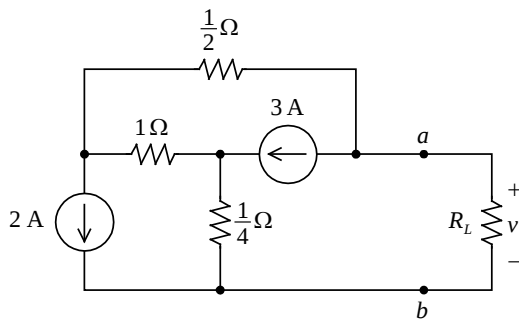
4. Find the R , If $I_1 = 3I_2$



5. Find the current through R If $R=10\Omega$



6. Find v when $R_L = \frac{1}{3}\Omega$



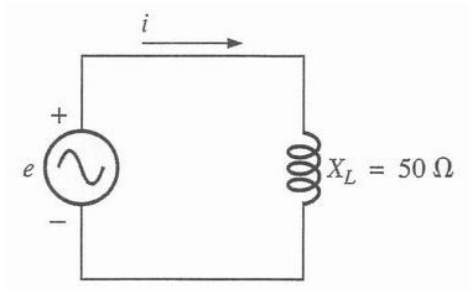
國立虎尾科技大學 110 學年度第 2 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

第 3 頁 共 3 頁

科目：電路學

7. If $e = 100 \sin(157t + 30^\circ)$

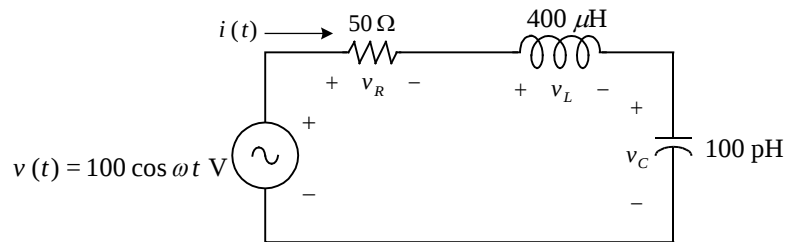


Find :

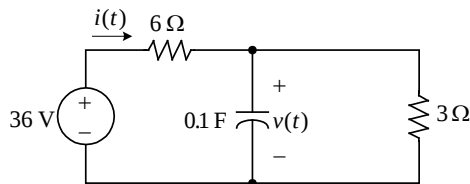
a. i

b. L

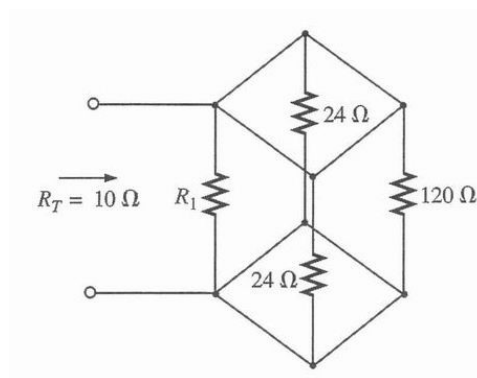
8. Find $v_R(t)$, $v_L(t)$, $v_C(t)$



9. If $i(0) = 1 \text{ A}$, Find $v(t)$ when $t > 0$.



10. Find R_1



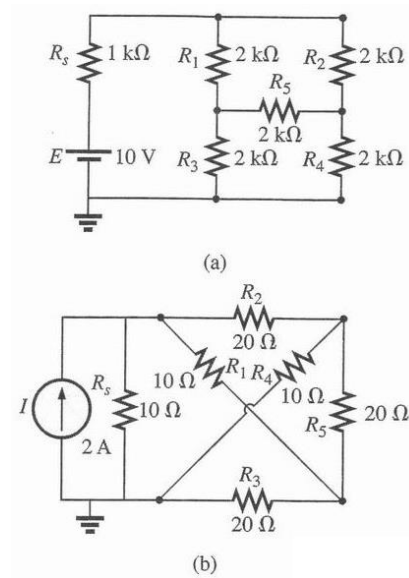


Fig.3

4. Find the Current flow the $R = 2 \Omega$ of Fig.4

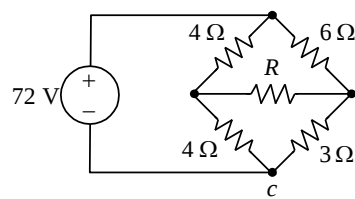


Fig.4

5. if $i(0^-) = 2 \text{ A}$, find the $i(t)$ when $t > 0$ of Fig.5

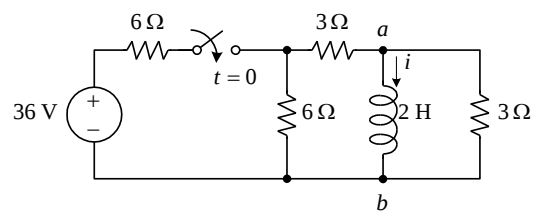


Fig.5

6. Find R_T of Fig.6

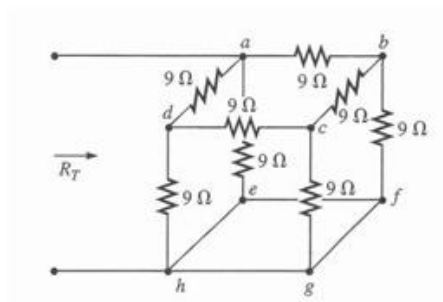


Fig.6

7. Find I , I_1 , I_2 , I_3 of Fig.7

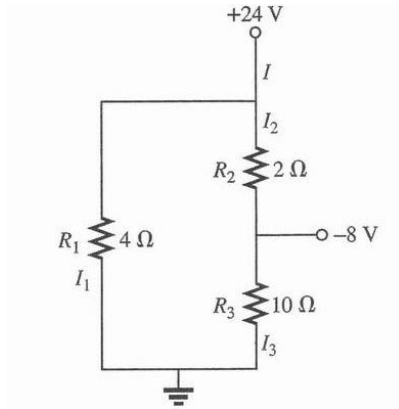


Fig.7

8. Find the mathematical expressions for the transient behavior of v_C and i_C following the closed of the switch.. for the network of Fig.8

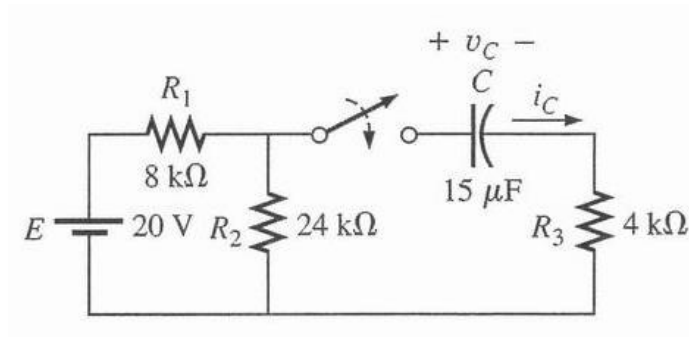


Fig.8

9. Find R_1 such that the R_4 will receive maximum power for the network of Fig.9

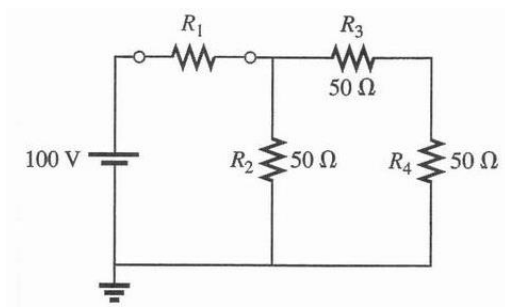


Fig.9

10. Find the Current flow the (A) and E of Fig.10

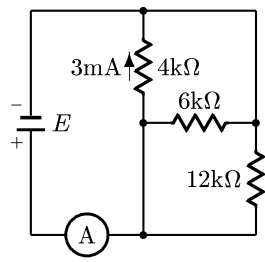


Fig.10

國立虎尾科技大學 113 學年度第 2 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

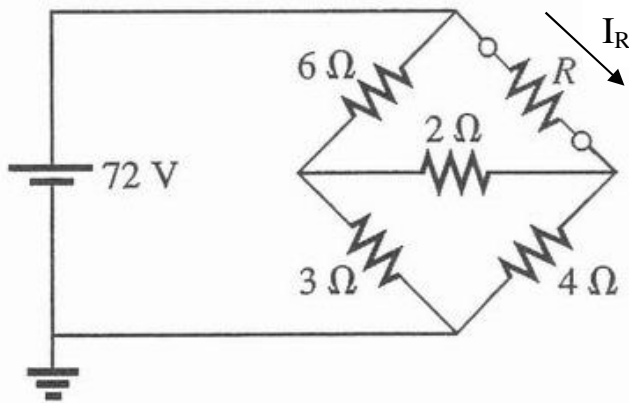
Page 1 / 2

科目：電路學

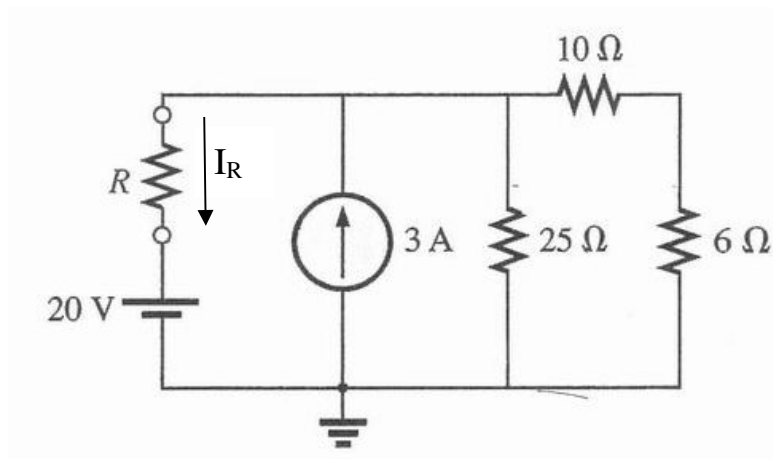
注意事項：

- (1) 本試題共有 4 題，每題 25 分，合計 100 分。
- (2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。
- (3) 閉書考、可使用計算機
Close book and Engineering calculator is allowable.

1. Find the current (I_R) through R, If $R=5\ \Omega$



2. Find the current (I_R) through R, If $R=5\ \Omega$



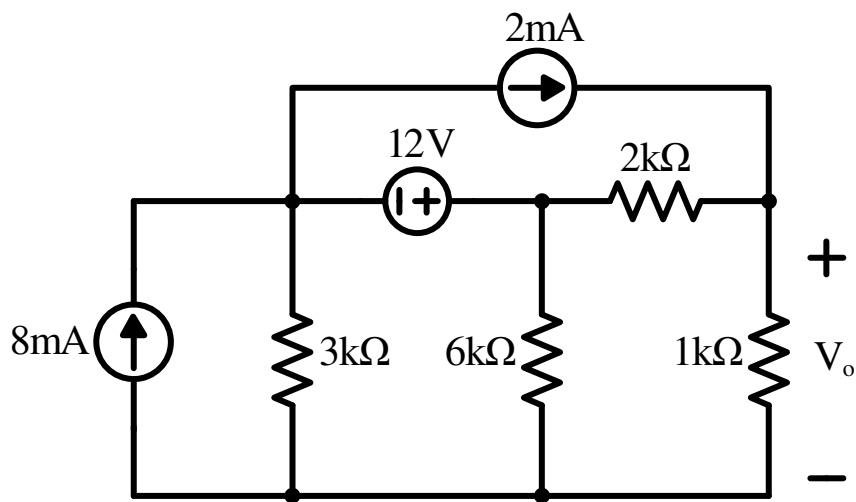
國立虎尾科技大學 113 學年度第 2 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

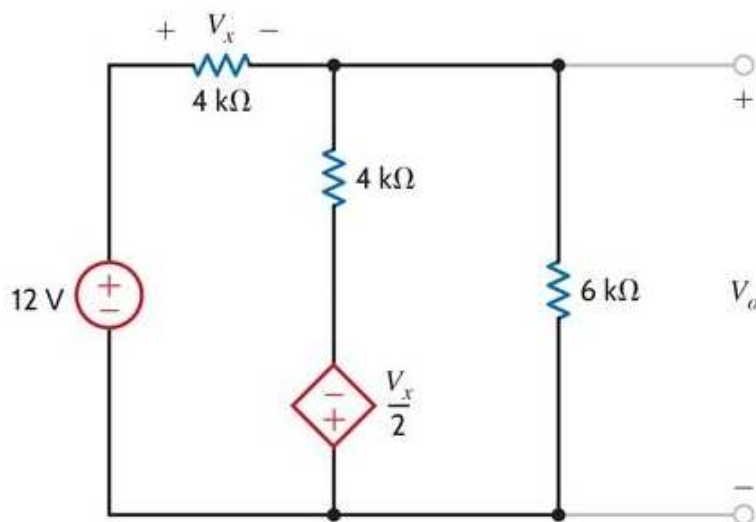
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科目：電路學

3. Find V_o in Fig. 1.



4. Find V_o in the circuit in Fig. 2 using Thévenin's theorem.



國立虎尾科技大學 114 學年度第 1 學期博士班資格考試題

系別：動力機械工程系機械與機電工程博士班

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科目：電路學

注意事項：

(1) 本試題共有 10 題，每題 10 分，合計 100 分。

This test consists of 10 questions. Each question is worth 10 points, for a total of 100 points.

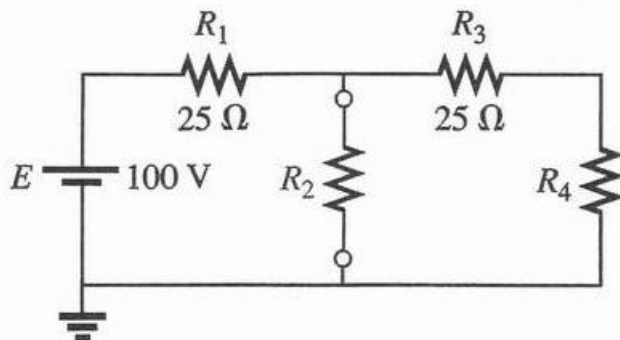
(2) 請依序作答於答案卷上並註明題號，若未註明選答題號及超過規定題數時，謹採計作答順序較前之題目計分。

Please answer in order on the answer sheet and clearly indicate the question numbers. If the selected question numbers are not indicated or if more than the required number of questions are answered, only the earlier answers in the response order will be graded.

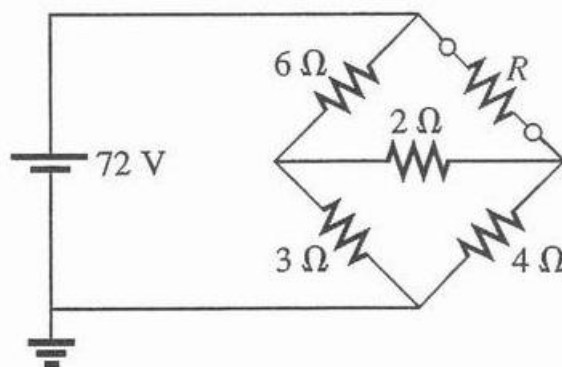
(3) 閉書考、可使用計算機

Close book and Engineering calculator is allowable.

1. Find R_2 such that the R_4 will receive maximum power

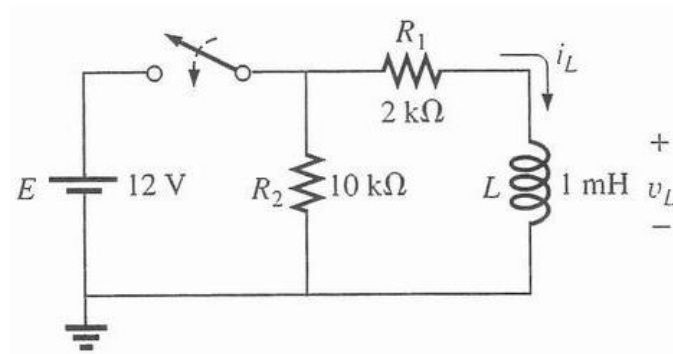


2. Find the current through R , If $R=10\Omega$

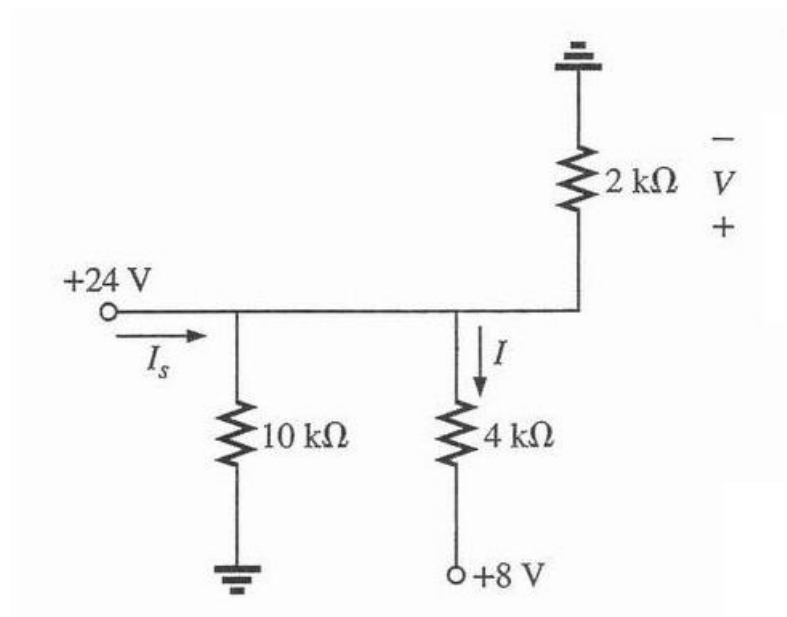


3. a. Determine the time constant.

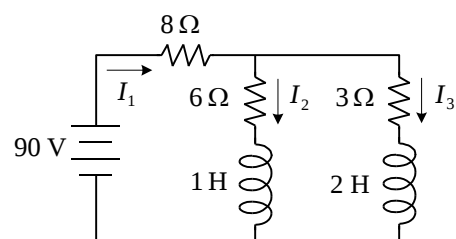
b. Write the mathematical expressions for the v_L and i_L when the switch is closed.



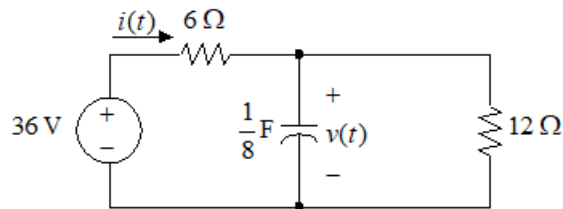
4. Find I , I_S , V



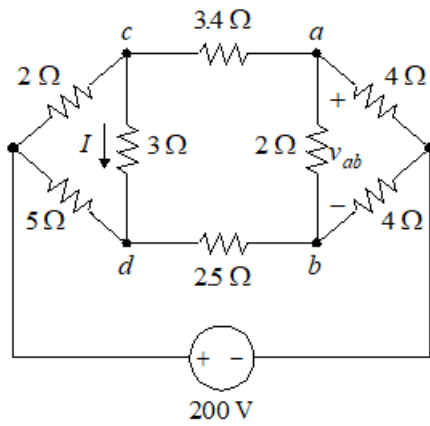
5. Find I_1, I_2, I_3



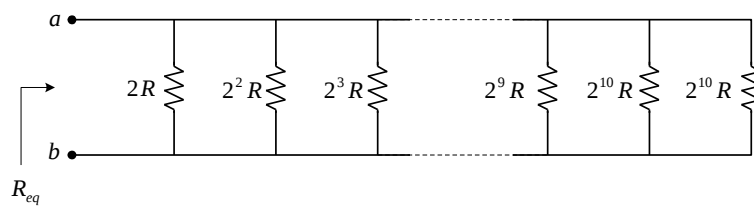
6. If $v(0)=0$, Find $v(t)$ and $i(t)$ when $t > 0$



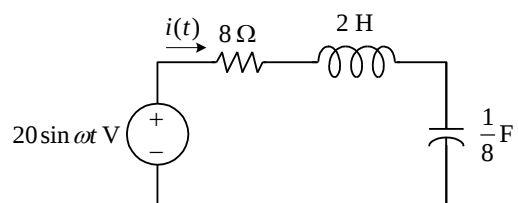
7. Find I and v_{ab}



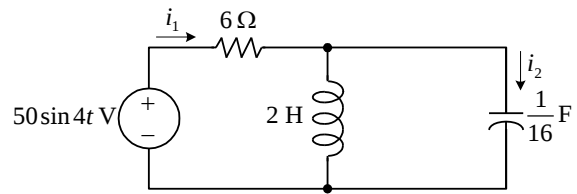
8. Find R_{eq}



9. Find $i(t)$ when $\omega = 4 \text{ rad/s}$



10. Find i_1 and i_2



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科目：電路學

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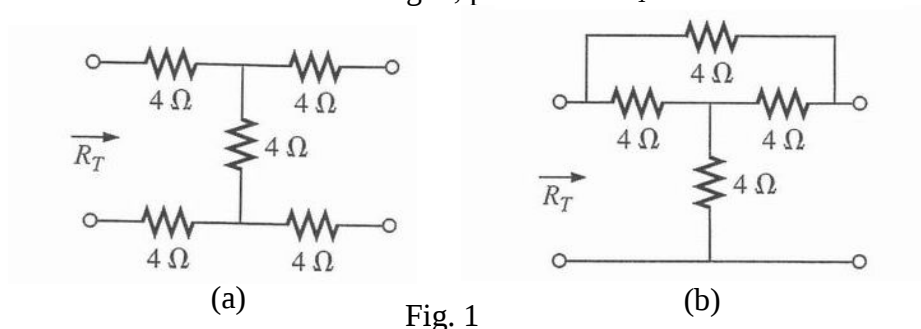
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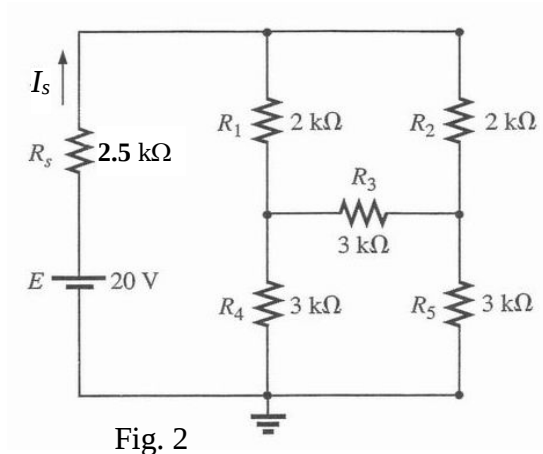
(3) 閉書考、禁止使用計算機。

Close book and Engineering calculator is not allowable.

1. As the two circuits shown in Fig. 1, please find R_T for each circuit.



2. As the circuit shown in Fig. 2, please find the current of I_s through R_s .



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3. Please find I , I_1 , I_2 and I_3 from the circuit as shown in Fig. 3.

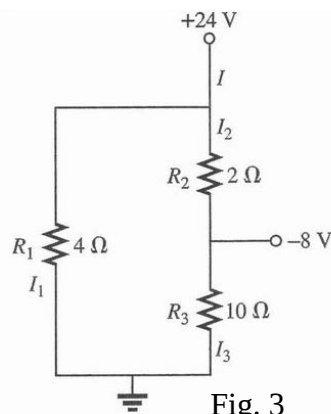


Fig. 3

4. Find the average value of the periodic waveform in Fig. 4 over one full cycle.

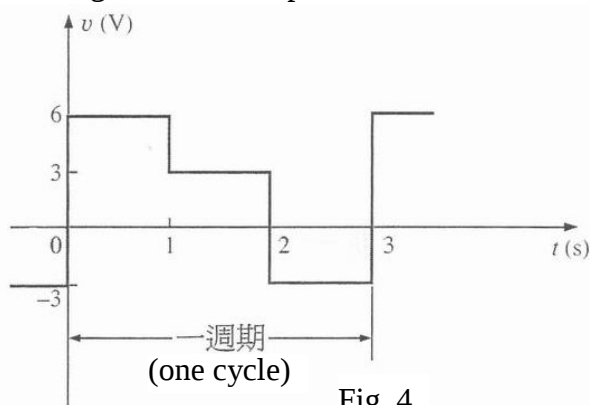


Fig. 4

5. In Fig. 5, please find the current through R , if $R=5\Omega$.

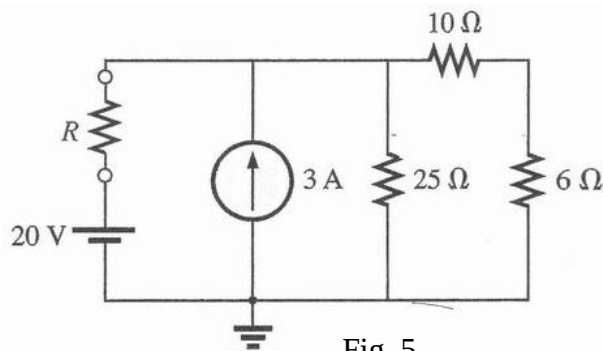


Fig. 5

6. In Fig. 6, please find the average power delivered to R_2 .

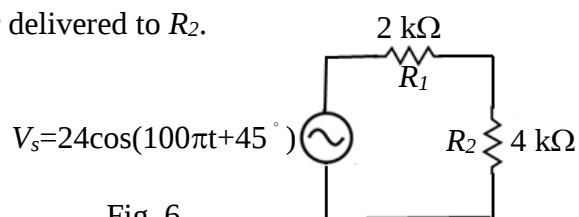


Fig. 6

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7. For the circuit shown in Fig. 7, where A and B are the load terminals, determine (a) the Thevenin equivalent circuit, and (b) the Norton equivalent circuit.

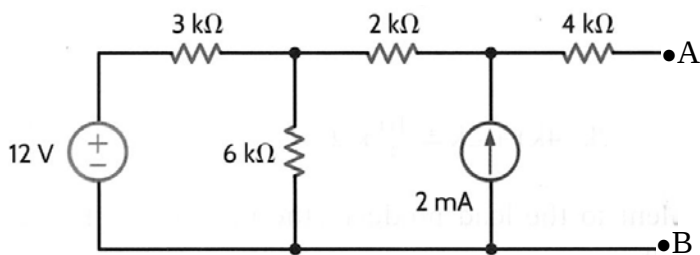


Fig. 7

8. For circuit as shown in Fig. 8, please (a) determine the time constant and (b) write the mathematical expressions for the $v_L(t)$ and $i_L(t)$ when the switch is closed.

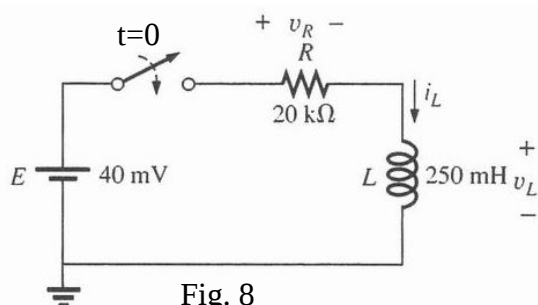


Fig. 8

9. Please compute the equivalent capacitance C_{eq} of the network in Fig. 9.

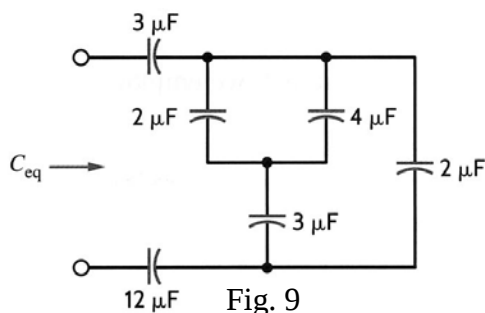


Fig. 9

10. Please find the current I_0 in the network in Fig. 10.

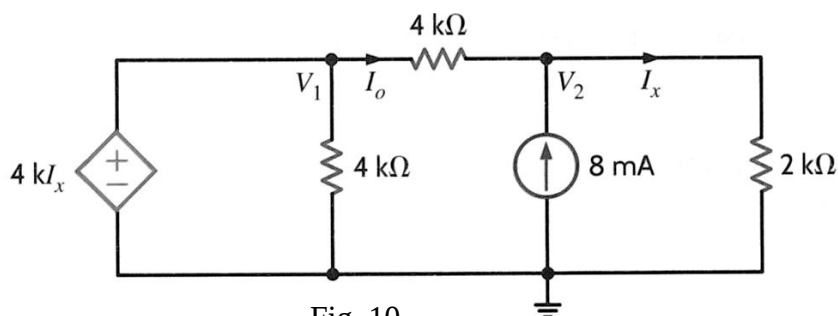


Fig. 10