

1. a) In the circuit configuration of Fig 1, determine the number of (a) nodes, (b) meshes. [1]  
 b) Transform the wye/star network in Fig 2 to a delta network. [2]  
 c) Find the equivalent conductance of the Fig 3. [2]

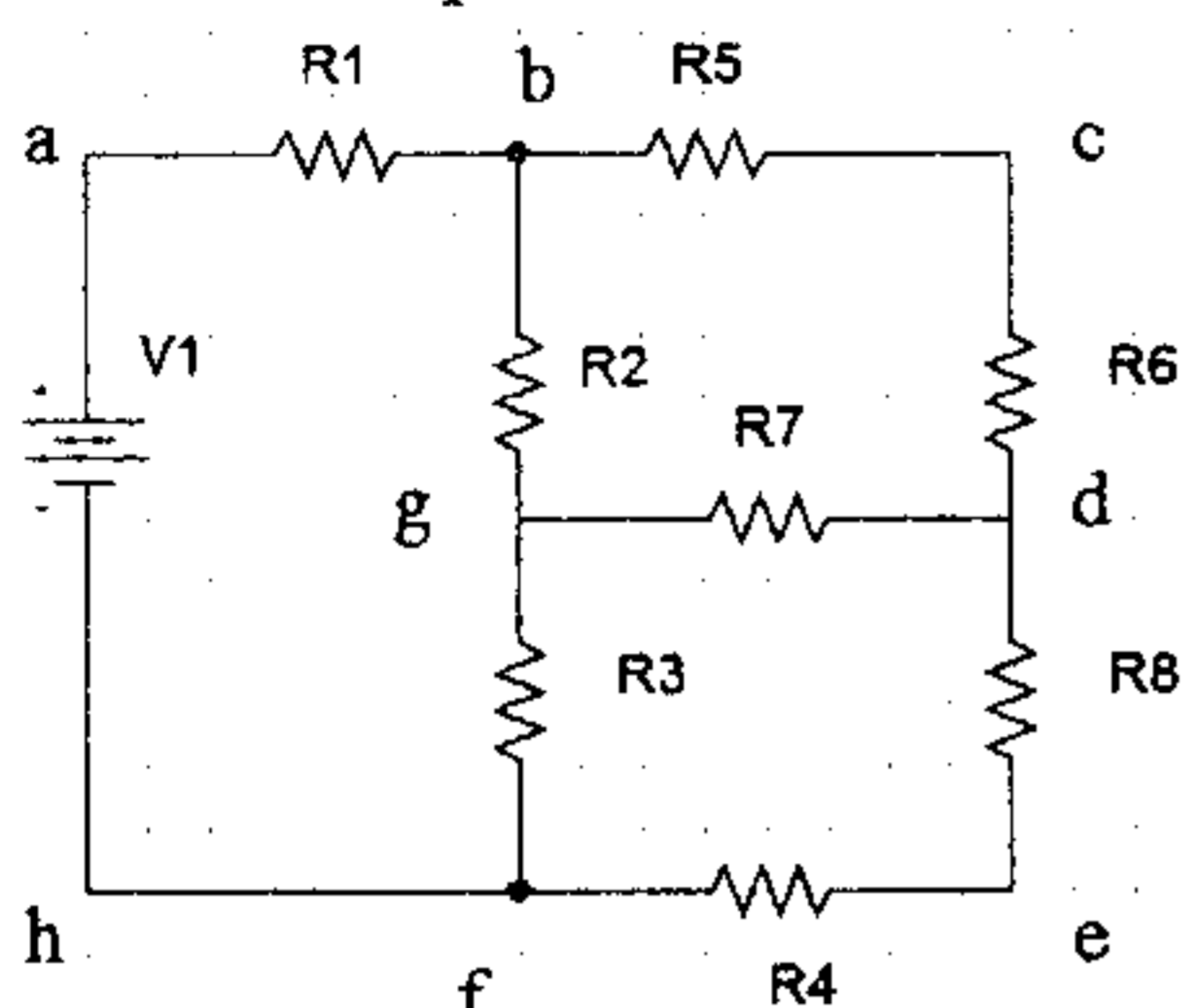


Fig 1

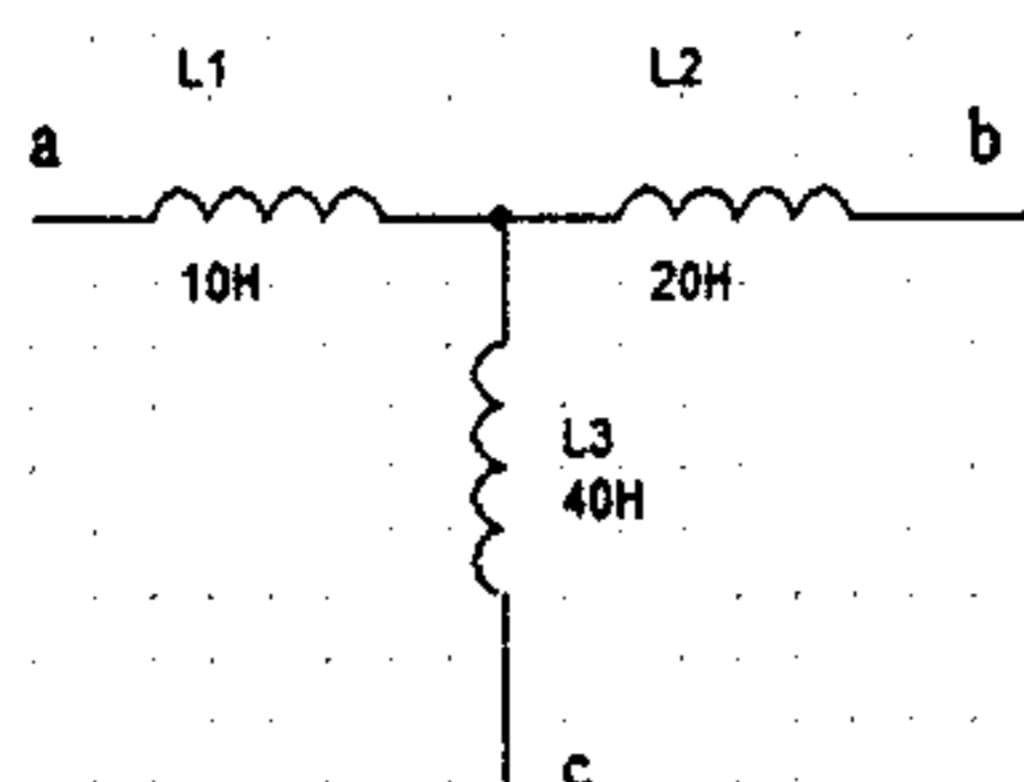


Fig 2

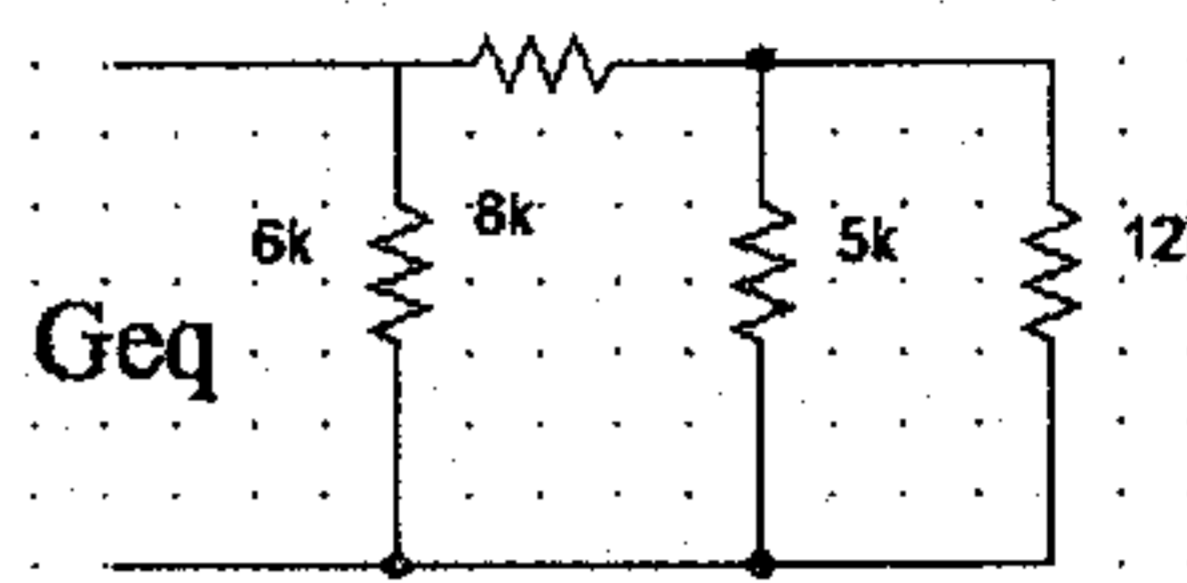


Fig 3

2. (a) For the Fig 4, determine (a) voltage  $v_0$ , and (b) power absorbed by each resistance [2.5]  
 (b) For the circuit shown in Fig 5, find the node voltages  $v_1$  and  $v_2$ . [2.5]

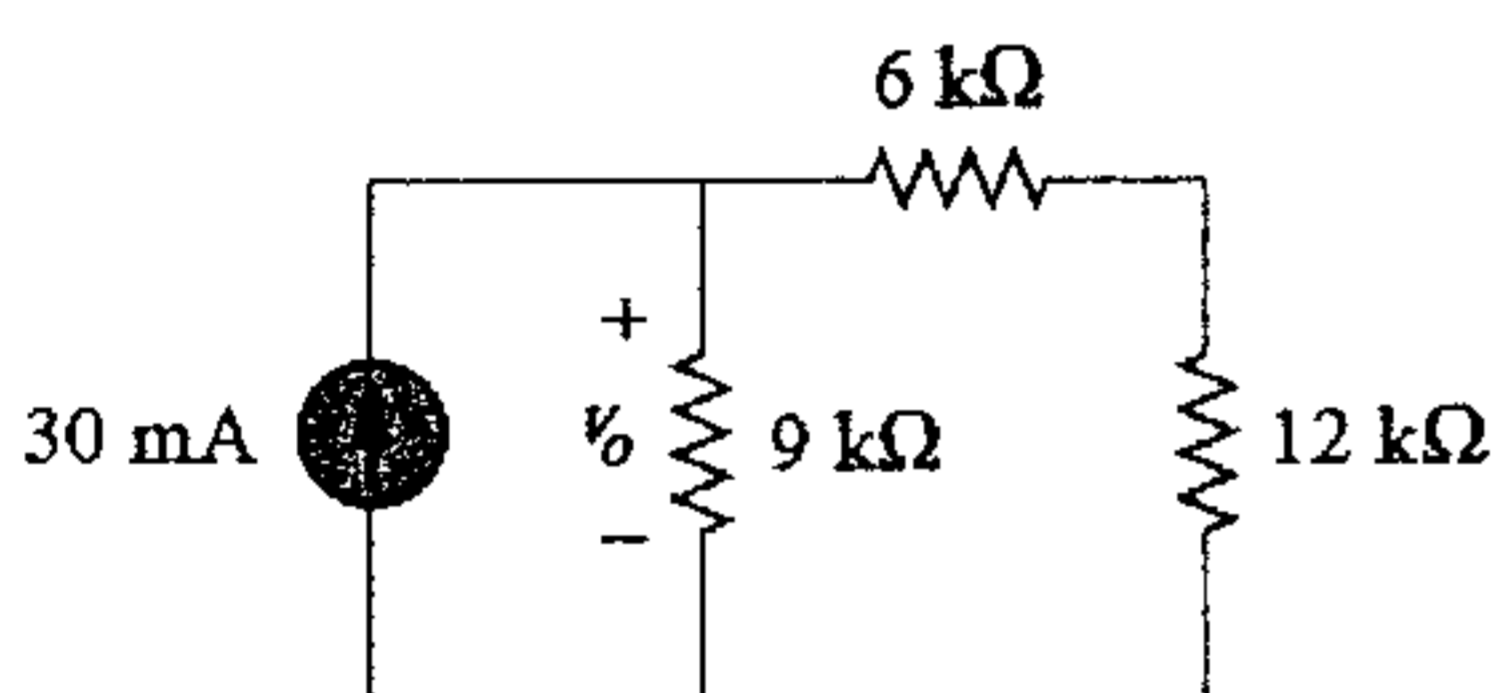


Fig 4

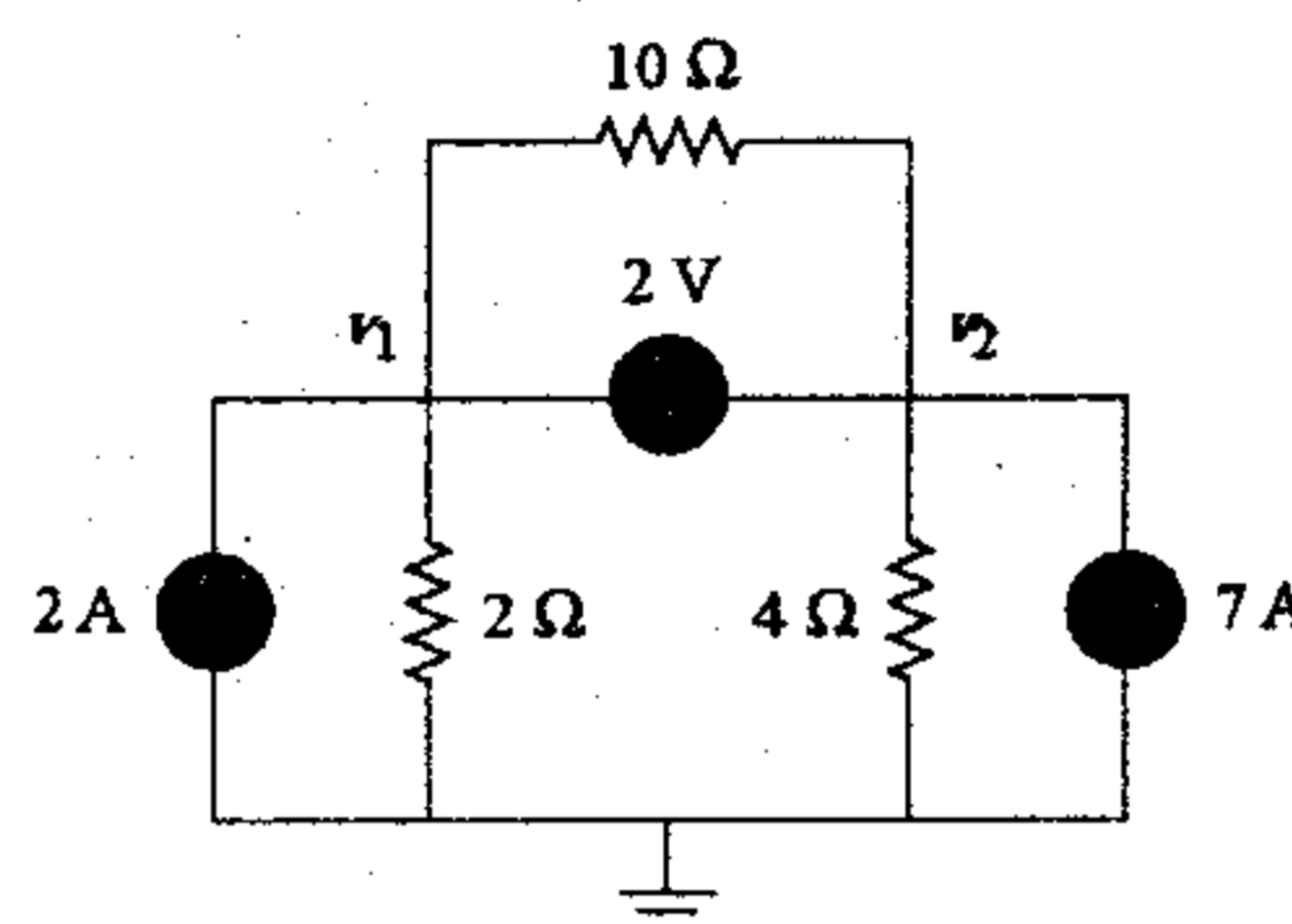


Fig 5

3. (a) Find out the unknown current  $i$  of Fig 6 using mesh analysis. [2.5]  
 (b) Calculate equivalent resistance  $R_{ab}$  in the circuit in Fig. 7. [2.5]

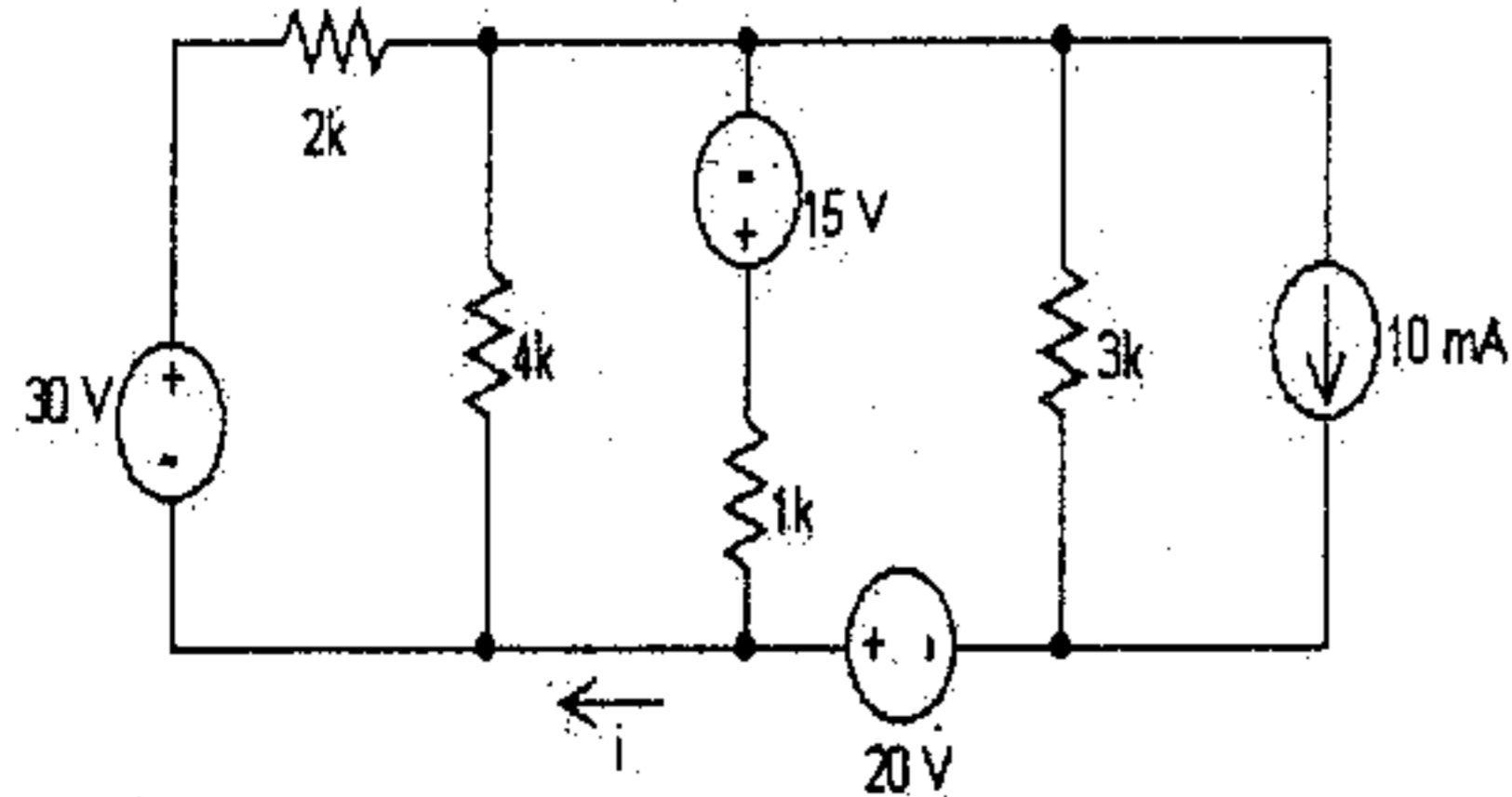


Fig 6

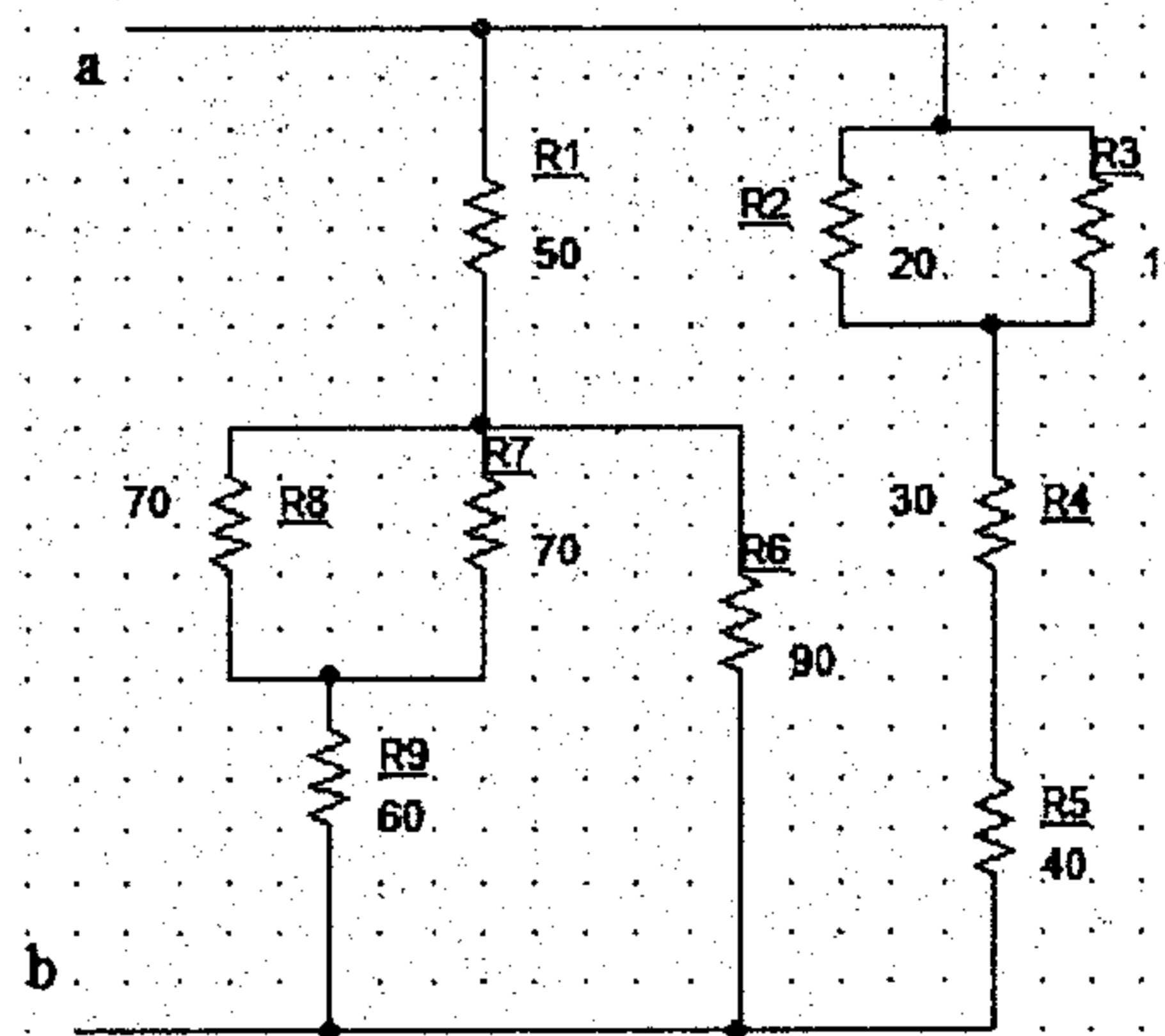


Fig 7