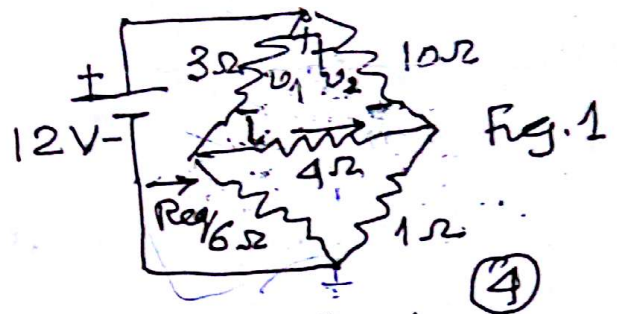


# Department of Electrical Engg. IIT Delhi

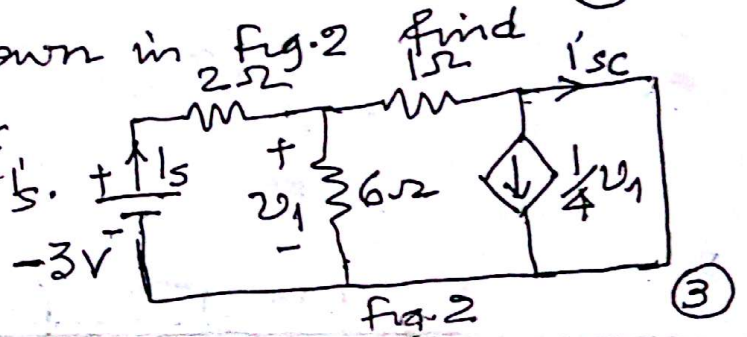
## EEEL101 Fundamentals of Electrical Engg

Time 60mts Minor Test I (01/09/11) Max Mks 20

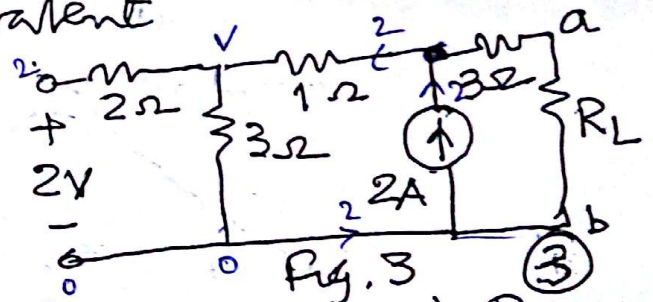
Q1. In the circuit of Fig 1. find  $v_1$ ,  $v_2$ ,  $i$  and  $R_{eq}$ . Use mesh analysis.



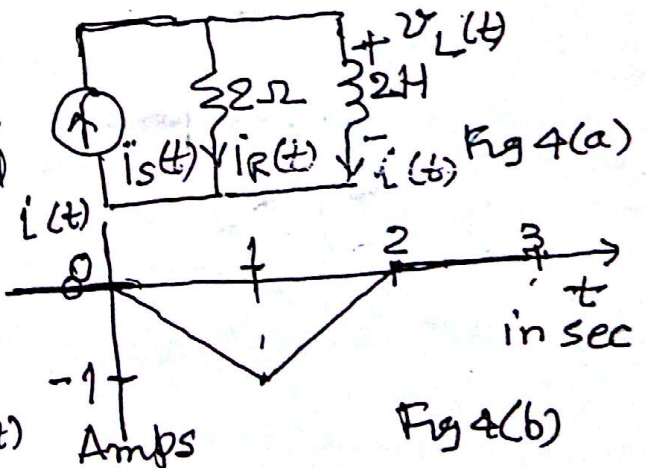
Q2 For the circuit shown in Fig. 2 find short circuit current  $i_{sc}$  and the source current  $i_s$ .  
 $I_s = \frac{17}{20} A$   $I_{sc} = \frac{9}{40} A$



Q3. Find Thevenin's equivalent of the circuit in Fig 3 to the left of terminals a and b. Determine the value of  $R_L$  which absorbs maximum power  $P_{max}$  and obtain  $P_{max}$ .



Q4. For the circuit shown in Fig 4(a), inductor current  $i(t)$  is described in Fig 4(b). Sketch  $v_L(t)$ ,  $i_R(t)$ ,  $i_s(t)$ ,  $P_R(t)$  and  $W_L(t)$ , to scale. Mathematically define  $i(t)$ ,  $i_s(t)$  and  $W_L(t)$  in the sketch against time. Explain the current direction with respect to the indicated arrow. Rs 1/2



Q5. For the circuit shown in Fig. 5, the switch Sw opens at  $t = 0$  sec. Find  $v(t)$

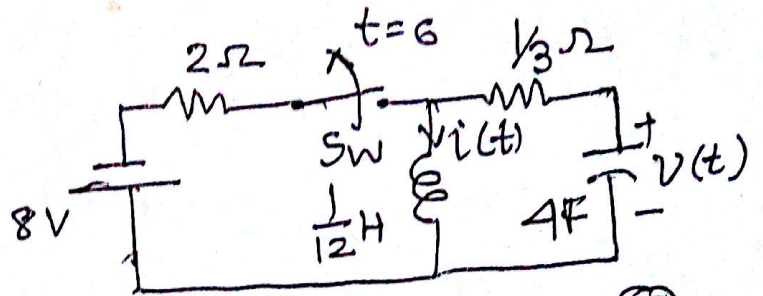


Fig. 5

(5)

and  $i(t)$  for  $t \geq 0$ .

Circuit has reached steady state condition prior to  $t = 0$  sec. Plot  $v(t)$  and  $i(t)$  against time and obtain peak capacitor voltage.