



Indian Institute of Information Technology Design and Manufacturing, Kancheepuram
Department of Electronics and Communication Engineering
Quiz 2 – October 2023

Course: Electrical Circuits for Engineers

Course Code: EC1000

Date: 31/10/2023 (Duration 1 hour)

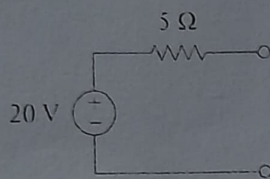
Total Marks: 20

Important note: Answer all the questions in the sequence

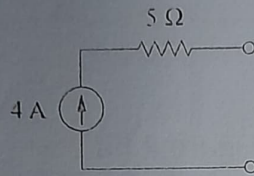
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1. Which pair of circuits in figure are equivalent? Justify (1)

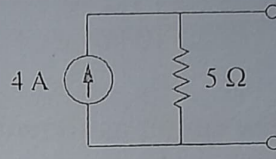
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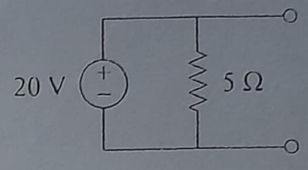
(a)



(b)



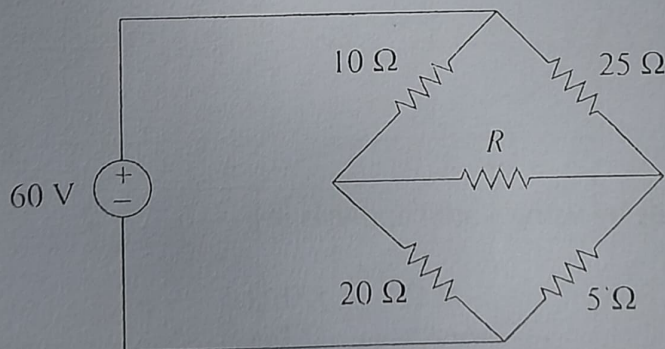
(c)



(d)

2. Determine the maximum power that can be delivered to the resistor R in the circuit of figure (5)

20.77 W

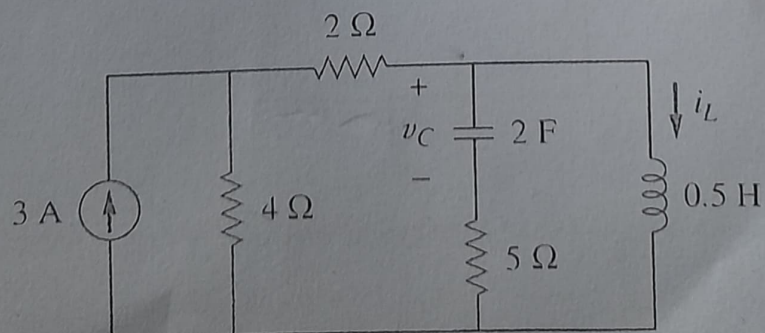


3. Find v_C , i_L , and the energy stored in the capacitor and inductor in the circuit (3)

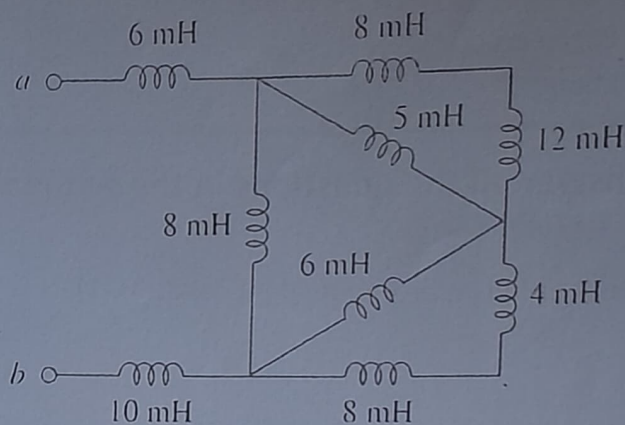
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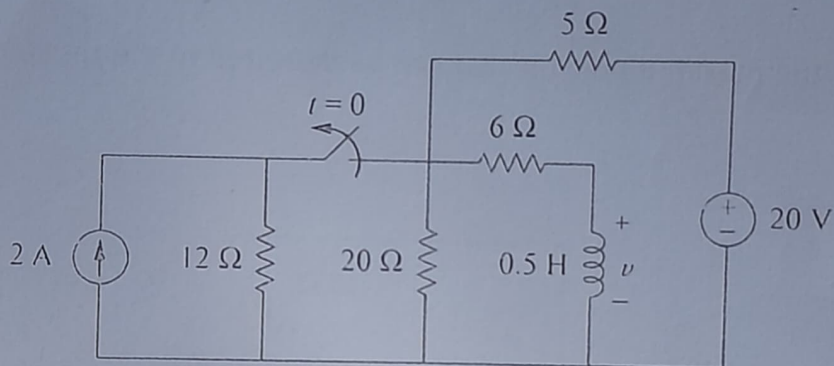
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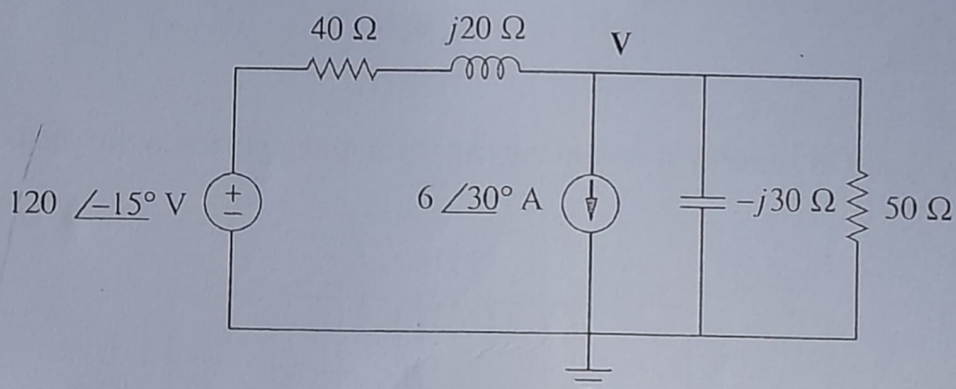
4. Find L_{eq} at the terminals of the circuit in Fig. (2) 20 mH



5. Find $v(t)$ at $t > 0$ in below circuit as shown Figure 7 (5)



6. Find V in the circuit by using nodal analysis (4)



*****Best Wishes*****

EC1000 - Quiz-2 Answer key

1) ① Ⓟ ② (1)

2) $R_{TH} = 10.83 \Omega$ (5)

$V_{TH} = 30V$

$P_{max} = 20.77 \text{ Watts}$

3) $i_L = 2A$, $V_L = 0V$ (3)

$W_L = 1J$, $W_C = 0J$

4) $L_{eq} = 20mH$ (2)

5) $R_{eq} = 10\Omega$, $\tau = 0.05 \text{ Sec}$

$i(0) = 2A$ (5)

$i(\infty) = 1.6A$

$i(t) = 1.6 + 0.4e^{-20t} A$

$v(t) = -4e^{-20t} A$

6) $V = 124.09 \angle -154^\circ \text{ Volts}$ (4)