



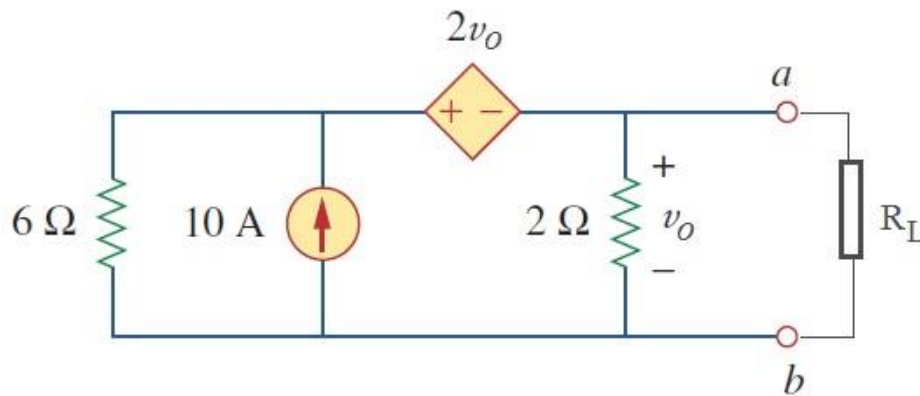
# EAST WEST UNIVERSITY

Department of Computer Science and Engineering  
B.Sc. in Computer Science and Engineering Program  
Final Assessment, Spring 2021 Semester

**Course:** CSE 209 Electrical Circuits, Section-4  
**Instructor:** M. Saddam Hossain Khan, Senior Lecturer, CSE Department  
**Full Marks:** 27 (27 will be counted for final grading)  
**Time:** 1 Hour and 30 Minutes (Including submission)

**Note:** There are FIVE problems, answer ALL of them. Course Outcome (CO), Cognitive Level and Mark of each question are mentioned at the right margin.

1. a) **Determine** the Thevenin equivalent of the following circuit with respect to terminals  $a$  and  $b$ . Consider the resistor  $R_L$  as the load. [CO2,C4, Mark: 7]



- b) **Determine** the value of  $R_L$  for maximum power transfer to the load of the following circuit.
- c) **Calculate** the maximum power.
2. a) **Determine**  $v(t)$  and  $i(t)$  in the following circuit. [CO1,C2, Mark:6]

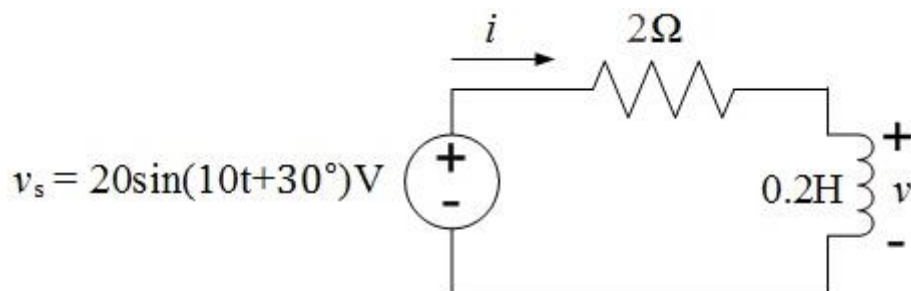
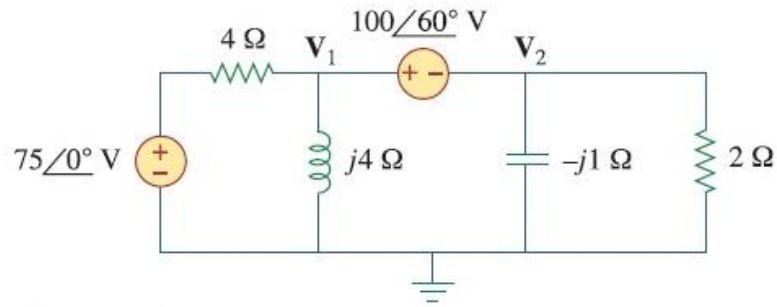


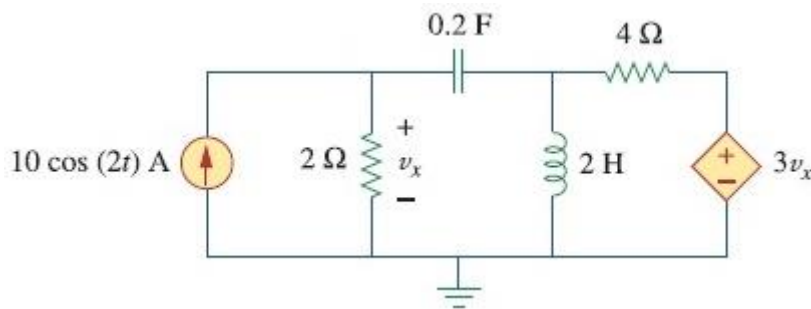
Figure 1

- b) Also, **determine** which one leads and by how much (in degrees) between the voltage across and current through the inductor from the circuit in Figure 1.

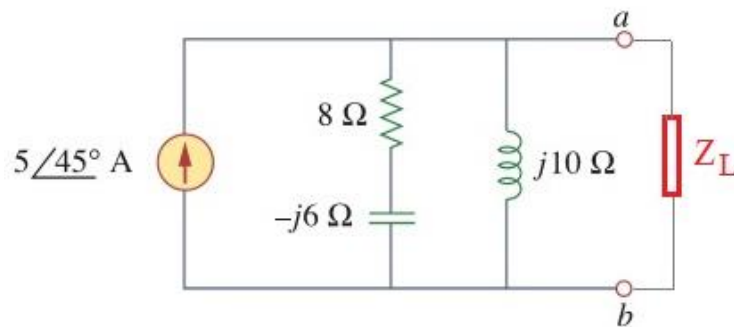
3. Using nodal analysis, **compute**  $V_2$  (in polar form) for the following circuit [Show analysis using Cramer's rule]. [CO3,C4, Mark: 4]



4. Using most effective source transformation, **find**  $v_x$  in the following circuit. [CO3,C4, Mark:4]



5. a) **Find** the value of  $Z_L$  that will absorb the maximum power and the value of the maximum power in the following circuit. [CO3,C4, Mark:6]



- b) **Find** the average power supplied by the source and absorbed by the resistor from Figure 1.