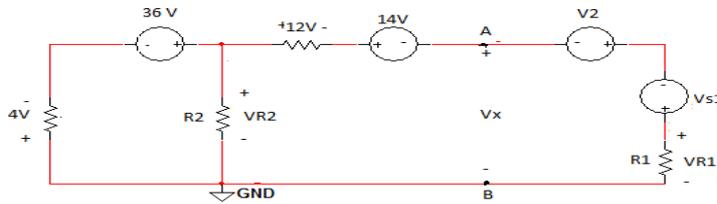
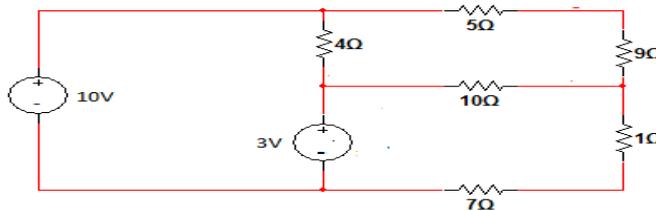


- (ii) The circuit shown below has eight circuit elements; voltages with plus – minus pairs are shown across each element. Find the voltage across R2 and voltage labeled Vx. (10)

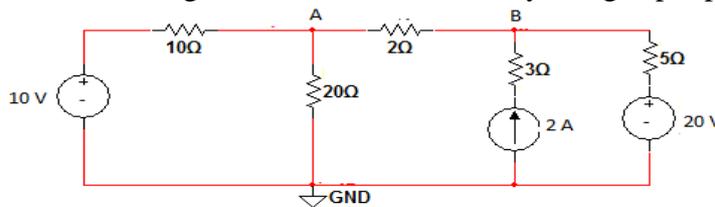


(OR)

- b) Find the current through 4Ω, 9Ω, 1Ω, and 10Ω resistor either by using mesh or nodal Analysis (negative of 3 Volt source is connected to ground potential)

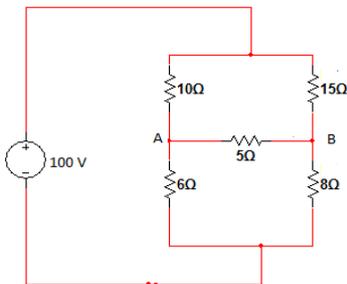


22. a) Find the voltage across the 2Ω resistor by using super position theorem.

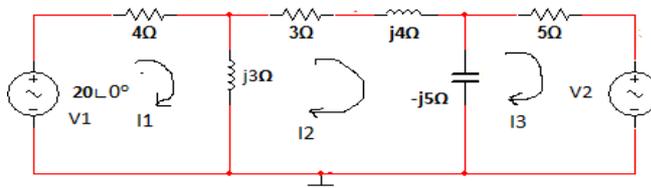


(OR)

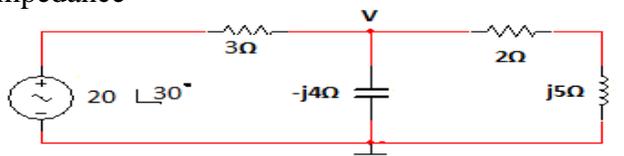
- b) Use Thevenin's theorem to find the current through 5Ω resistor.



23. a) (i) For the circuit shown below, determine the value of V2 such that $(3+4j) \Omega$ impedance is zero. (8)

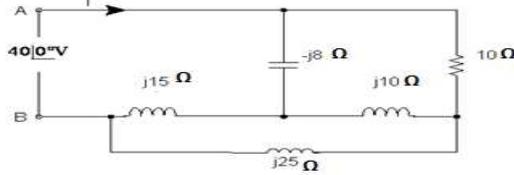


- (ii) Use only nodal analysis to find the node voltage and current through $(2+j5) \Omega$ impedance (6)

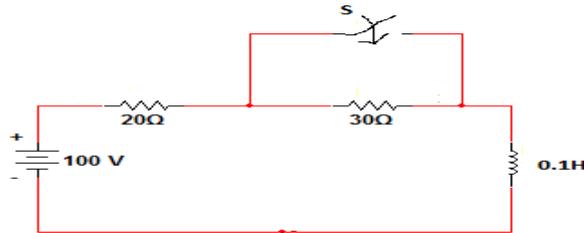


(OR)

- b) For the network shown below, determine (a) the equivalent circuit impedance across terminals AB, (b) supply current I and (c) the power dissipated in the 10Ω resistor.

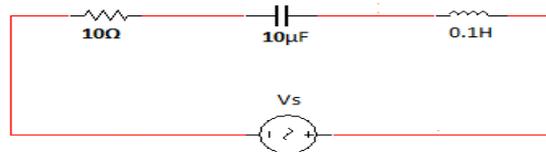


24. a) For the circuit find the complete expression for the current when the switch is closed at time $t = 0$

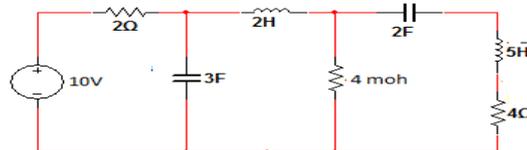


(OR)

- b) Determine the impedance at resonant frequency, 10 Hz above resonant frequency, at 10 Hz below resonant frequency, for the circuit shown below



25. a) (i) Find the dual circuit for the circuit shown below. (8)



- (ii) Two inductively coupled coil have self inductance $L_1 = 50$ mH and $L_2 = 200$ mH. If the coefficient of coupling is 0.5 i) find the value of mutual Inductance between the coils, and ii) what is the maximum possible mutual inductance ? (6)

(OR)

- b) Formulate the Link analysis for the directed graph shown in the figure.

