

G.R. No.

paper code: V239-133 (T1)

OCTOBER/ 2019 INSEM (T1)

S. Y. B.TECH. (E and TC) (SEMESTER - III)

COURSE NAME: Engineering Circuit Analysis

COURSE CODE: ETUA21183

(PATTERN 2018)

Time: [1 Hour]

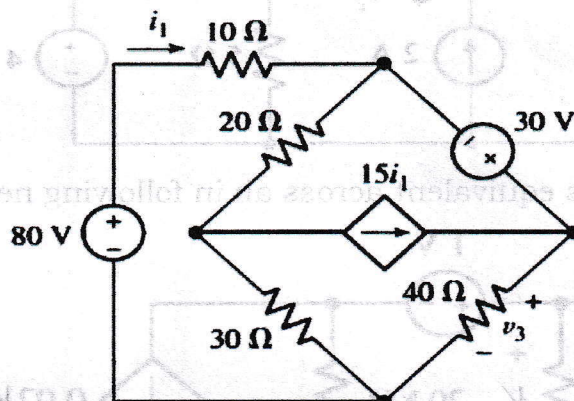
[Max. Marks: 20]

(*) Instructions to candidates:

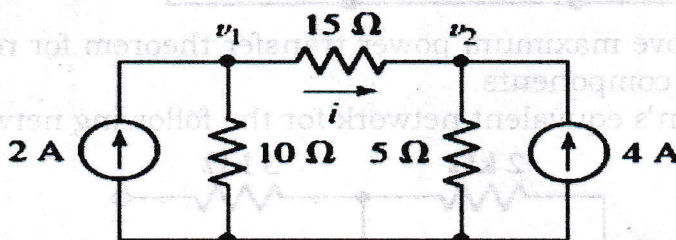
- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed.
- 4) Assume suitable data where ever required.

Q1 Attempt any ONE

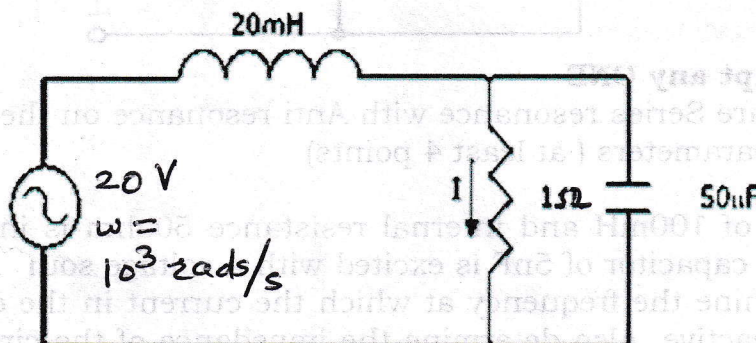
- a) Determine V_3 that is, voltage across 40 ohm resistor using loop [4+4=8]
analysis.



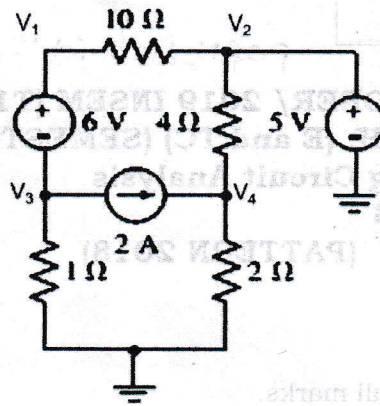
Refer the network below. Using nodal analysis determine current through 15 ohm resistor.



- b) In the following network determine current I through 1 ohm resistor using source transformation [4+4=8]

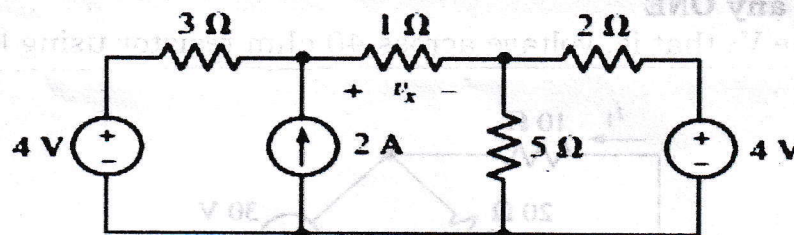


Refer the network below. Using nodal analysis determine all four nodal voltages.

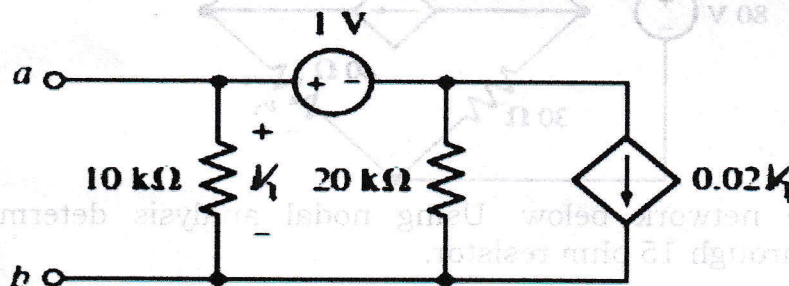


Q2 Attempt any ONE

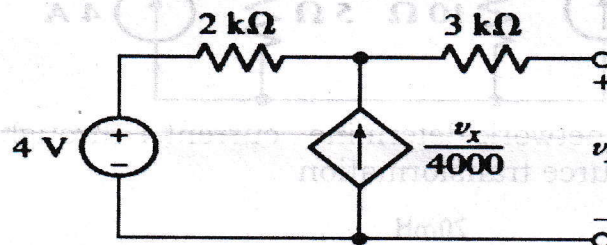
- a) Apply superposition theorem to the following network and [4+4=8] determine V_x across 1 ohm resistor



Obtain Thevenin's equivalent across ab in following network



- b) State and prove maximum power transfer theorem for network [4+4=8] with reactive components.
Obtain Norton's equivalent network for the following network



Q3 Attempt any ONE

- a) Compare Series resonance with Anti resonance on the basis of their parameters (at least 4 points) [4]
- b) A coil of 100mH and internal resistance 50ohm is in parallel with a capacitor of 5nF is excited with a voltage source of 10V. Determine the frequency at which the current in the circuit is non reactive. Also determine the impedance of the circuit and the current at resonance. [4]

