

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC- SEMESTER– 1st • EXAMINATION – WINTER - 2020

Subject Code: 2910905**Date: 15-03-2021****Subject Name: Electrical Circuit Analysis****Time: 10:30 AM to 12:30 PM****Total Marks:56****Instructions:**

1. Attempt any FOUR questions out of SEVEN questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) State and explain Thevenin's Theorem. **07**
 (b) Find the values of V_1 , V_2 and power loss in 2 ohm using Nodal analysis in figure 1. **07**
- Q.2** (a) State and explain Maximum power transfer Theorem. **07**
 (b) Briefly explain the mesh analysis with suitable example. **07**
- Q.3** (a) Derive voltage and current expression for transient response of driven R-L series circuit. **07**
 (b) Describe the initial conditions in the inductor and resistor. **07**
- Q.4** (a) List out advantages of poly-phase system over single phase system. Also define apparent power, active power and reactive power. **07**
 (b) Discuss dot convention rule for the magnetically coupled Network. **07**
- Q.5** (a) Determine the Laplace transform of $f(t) = e^{-at} \sin \omega t$ and $f(t) = e^{-at} \cos \omega t$. **07**
 (b) Write the circuit equations for a series RL circuit connected to a DC supply. Using Laplace transform, obtain the transfer function between inductor current and supply voltage. **07**
- Q.6** (a) Briefly describe h parameter for two port network. **07**
 (b) Explain briefly why ABCD parameters is called transmission parameter and write expression of ABCD parameter for two port network. **07**
- Q.7** (a) Discuss in brief about poles, zero and D.C gain of network function **07**
 (b) Explain series resonance in detail. **07**

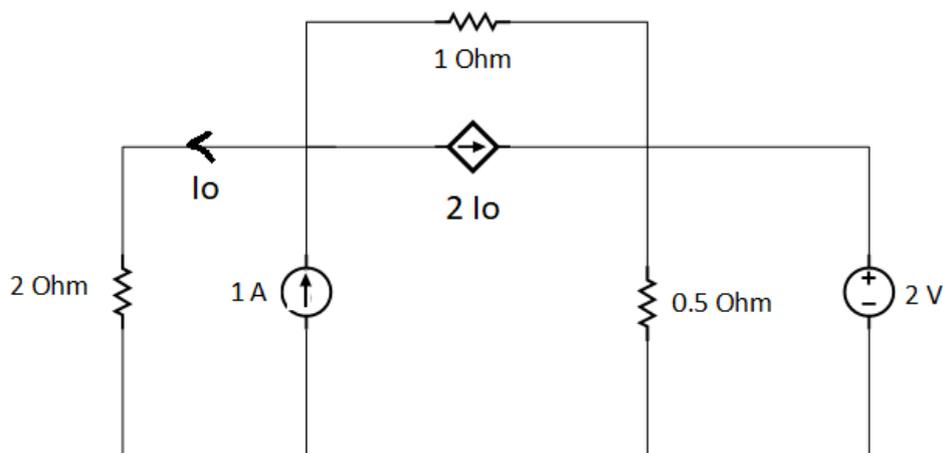


Fig – 1