Name

Jaypee Institute of Information Technology, Noida

T1 Examination, 2020

B.Tech. 2nd semester

Course Name: Electrical Science-1 **Max Time: 1 Hr**

Course Code: 15B11EC111 **Max Marks: 20**

After pursuing this course, the students will be able to:

CO1 Recall the concepts of voltage, current, power and energy for different circuit elements. Apply the kirchhoff's laws and different analyzing techniques to identify the different circuit parameters.

CO2 Define and apply the networks theorems in the complex AC and DC circuits, networks. Demonstrate the physical model for given sinusoidal AC signal and construct the phasor diagrams.

CO3 Demonstrate the concepts of resonance and operate different instrumental and measurement equipments.

CO4 Demonstrate the construction and working of single phase transformer.

Note: Attempt all the questions.

Q. 1 For the circuit as shown in Fig. 1, $i_0 = 3A$. Calculate i_x and the total power absorbed by the entire circuit. **[4, CO1]**

Q. 2 If $R_{eq} = 50\ \Omega$ in the circuit as shown in Fig. 2, Find the value of R. **[3, CO1]**

Q. 3 Determine the value of the voltage that is measured by the voltmeter as illustrated in Fig. 3. **[4, CO1]**

Q. 4 Find the currents i_1, i_2 and i_3 in the circuit as given in Fig. 4. **[5, CO1]**

Q. 5 Use superposition theorem to find the v_x in the circuit as demonstrated in Fig. 5. **[4, CO2]**

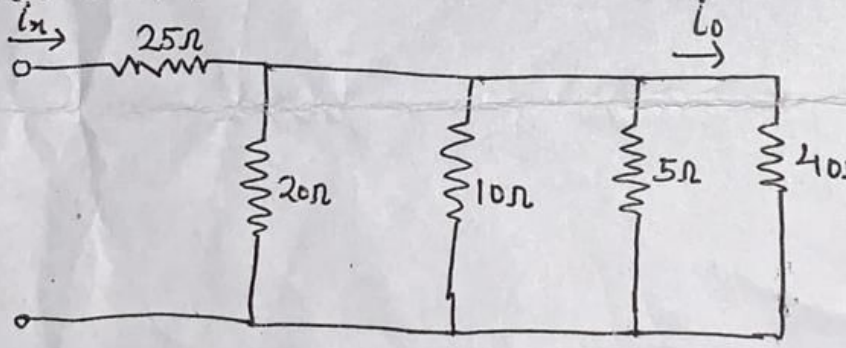

Fig. 1

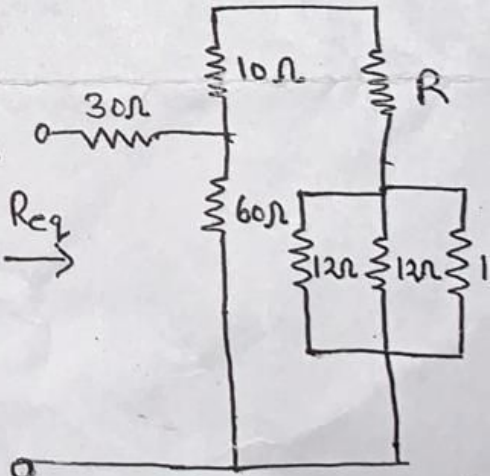

Fig. 2

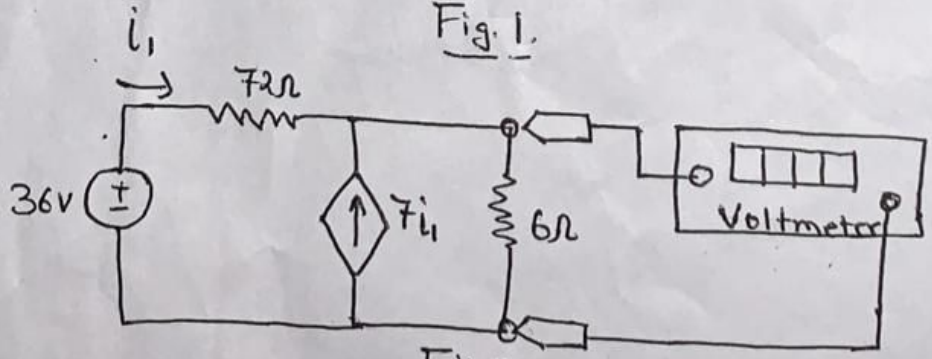

Fig. 3.

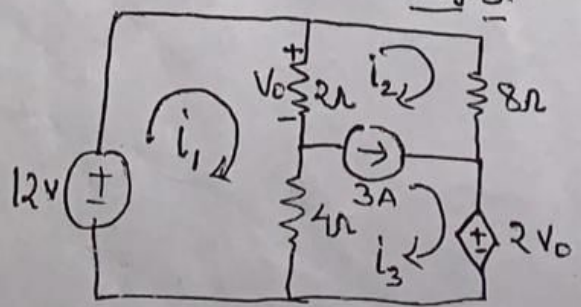

Fig. 4

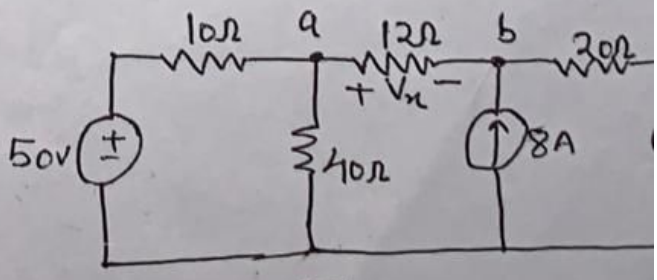

Fig. 5