DEPARTMENT OF ELECTRICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, SRINAGAR

Exam: Minor
Subject – Basic Electrical Eng (ELE-307)
Time allowed – 1 h 30 m

Semester - 3rd (CSE)
Date : 01-10-2018
Max Marks – 30

Course Objectives:

CO1: To analyze and evaluate the electrical circuits, apply basic laws in circuit theory and to determine electric circuit parameters.

CO2: To identify and analyze various energy sources and their transformation.

CO3: Power and energy relations, analysis of series parallel D.C. Circuits and network theorem along with applications.

Note: Attempt all questions.

Q1: a) The total current drawn by a circuit consisting of three resistors connected in parallel is 12 A. The voltage drop across the first resistor is 12 V, the value of second resistor is 3 Ω and the power dissipation of the third resistor is 24 W. What are the resistances of the first and third resistors ? (5)(CO1)

b) In Fig 1 below, find the current (I_3) through 4Ω Resistor. (5)(CO1)

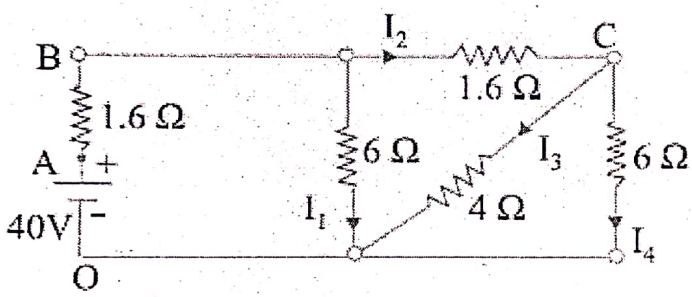

Fig 1

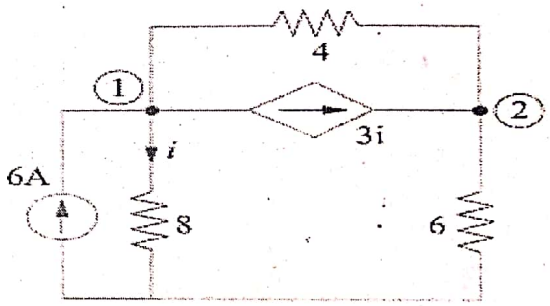

Fig 2

Q2: a) Define with VI-relationship the following:

I. Ideal and Practical Voltage Source
II. Ideal and Practical Current Source (5) (CO2)

b) Use Nodal analysis to determine the value of current **i** in the network of Fig. 2. (5)(CO1)

Q3: Find current I in the circuit shown in Fig.3 using

I. Superposition theorem
II. Thevenin's Theorem. All resistances are in ohms. (5,5) (CO3)

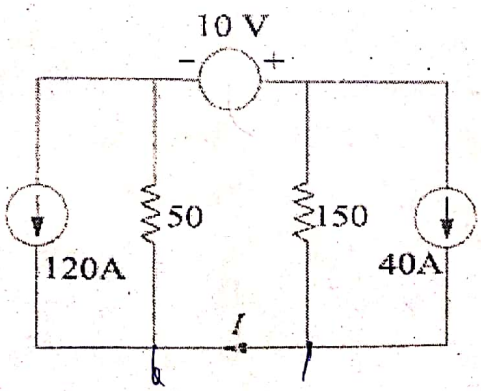

Fig 3

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