Experiment –

Aim : To Verify Norton's Theorem.

Apparatus : 1. Voltmeter (0-50V)
2. Ammeter (0-150 mA)
3. Resistance Network(R1=50Ω, R2 = 150Ω, R3 = 100Ω)

Theory: Norton's theorem provides a mathematical technique for replacing a given network into equivalent network as viewed from two output terminals A & B. It replace the given network by a signal current source with a parallel resistance connected across two terminals A & B of a linear ,bilateral network, is given by the I_{SC}(short circuit current) and Ri the internal resistance of the network as viewed back into the open circuit. Where voltage source replaced their internal resistance and current source by infinite resistance.

Procedure :

1. The circuit is connected as shown in fig.A and reading of ammeter is noted.
2. The resistance R3 is removed from the terminals and the ckt. redrawn as in fig.B. The terminals have become short circuited.
3. The short circuited current passing through the terminals A &B when they are short is noted down from the ammeter.
4. Next the battery is removed and the ckt. redrawn as in fig.C. When viewed from terminals A,B. & equivalent resistance of the circuit is found.
5. Using Norton's equivalent circuit find the current through R3 and verify it.

Observations:

Result:

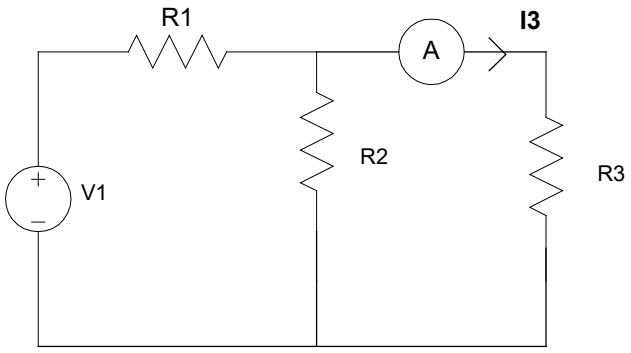

Fig.A

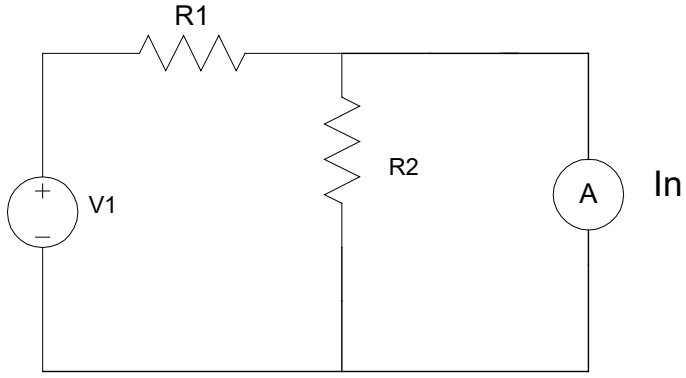

Fig.B

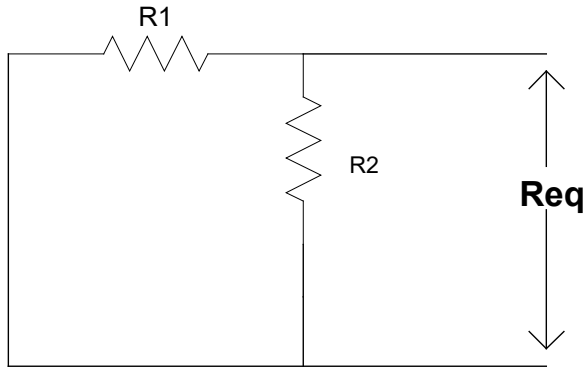

Fig.C

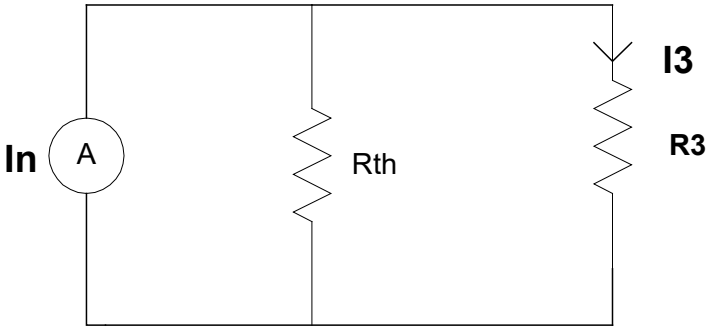

Fig.D Norton's Equivalent circuit