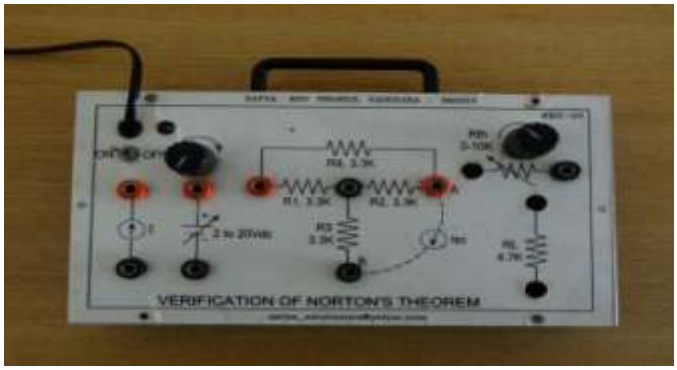
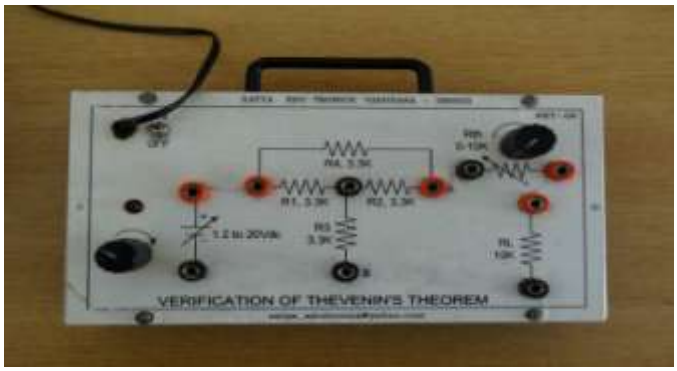
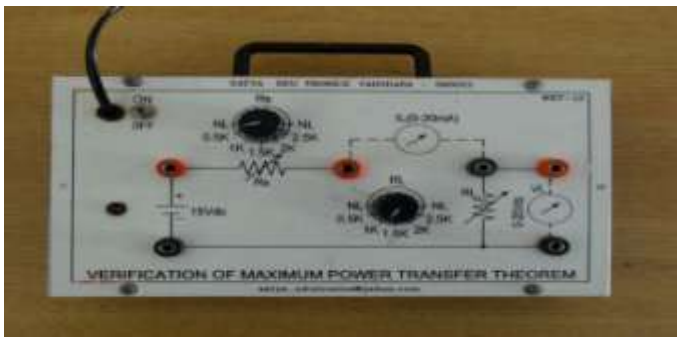
Network Laboratory



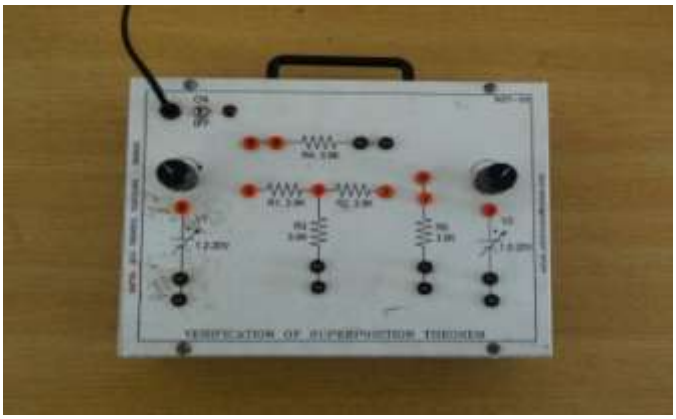
Norton's theorem states that a linear two-terminal circuit can be replaced by an equivalent circuit consisting of a current source I_N in parallel with a resistor R_N where I_N is the short-circuit current through the terminals and R_N is the input or equivalent resistance at the terminals when the independent sources are turned off.



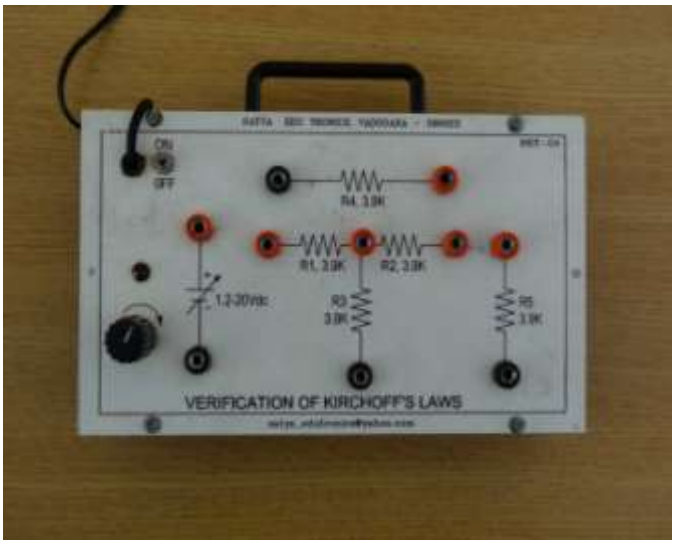
Thevenin's theorem states that a linear two-terminal circuit can be replaced by an equivalent circuit consisting of a voltage source V_{TH} in series with a resistor R_{TH} where V_{TH} is the or the open circuit voltage at the terminals and R_{TH} is the input or equivalent resistance at the terminals when the independent sources are turned off.



In electrical engineering, the maximum power transfer theorem states that, to obtain maximum external power from a source with a finite internal resistance, the resistance of the load must equal the resistance of the source as viewed from its output terminals.

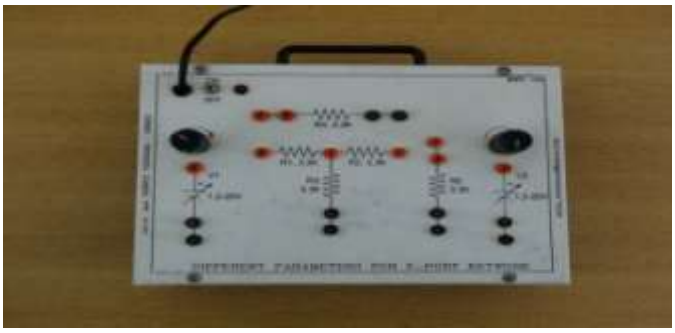


Superposition Theorem Stated as: In a network of linear resistances containing more than one generator (or source of e.m.f), the current which flows at any point is the sum of all the currents which would flow at that point if each generator where considered separately and all the other generators replaced for the time being by resistances equal to their internal resistances.



KCL:“At any node (junction) in an electrical circuit, the sum of currents flowing into that node is equal to the sum of currents flowing out of that node, or: The algebraic sum of currents in a network of conductors meeting at a point is zero”. The sum of currents entering the junction is thus equal to the sum of currents leaving. This implies that the current is conserved (no loss of current).

KVL: The principles of conservation of energy imply that the directed sum of the electrical potential differences (voltage) around any closed circuit is zero.



It can determine equivalent parameters like Z-parameter, Y-parameter, hybrid-parameter, ABCD-parameter of parallel connection of two-port network