

Chapter:5

(Apply the principle of resonance in Parallel circuit)

Lecture-1

Definition of Parallel Resonance:

- In series RLC circuit, the current flowing through all the three components i.e. the resistor, inductor and capacitor remains the same, but in parallel circuit, the voltage across each element remains the same and the current gets divided in each component depending upon the impedance of each component. That is why parallel RLC circuit is said to have dual relationship with series RLC circuit.

- **Admittance Triangle of Parallel RLC Circuit:**

- In series RLC circuit, impedance is considered, but as stated in introduction on parallel RLC circuit, it is exactly opposite to that of series RLC circuit; so in Parallel RLC circuit, we will consider admittance. The impedance Z has two components; resistance, R and reactance, X . Similarly, admittance also has two components such as conductance, G (reciprocal of resistance, R) and susceptance, B (reciprocal of reactance, X). So admittance triangle of parallel RLC circuit is completely opposite to that of series impedance triangle.

- **Resonance in Parallel RLC Circuit:**
- Like series RLC circuit, parallel RLC circuit also resonates at particular frequency called resonance frequency i.e. there occurs a frequency at which inductive reactance becomes equal to capacitive reactance but unlike series RLC circuit, in parallel RLC circuit the impedance becomes maximum and the circuit behaves like purely resistive circuit leading to unity electrical power factor of the circuit

- Admittance Triangle:

