

Practical Assignment
Computer Programming
17/10/2022

Electronics Circuit Theory II

Assignment 12

Parallel Resonance Circuit:

Parallel resonance occurs when the supply frequency reaches zero phase difference between the supply voltage and current producing a resistive circuit. It may be a parallel resonant circuit or exactly the same as the series resonant circuit.

Both are equivalent networks that contains two reactive components making them a series-aided circuit, both are influenced by variations in the supply frequency and both have frequency point where both two reactive components cancel each other out influencing the characteristics of the circuit. Both circuits have a resonant frequency point.

The difference in time however, is that a parallel resonance circuit is influenced by the currents flowing through each parallel branch ~~which~~ within the parallel LC tank. A tank circuit is a parallel combination of L and C that is used in filter networks to either select or reject AC frequency.

Series Resonance Circuit:

Resonance occurs in a series circuit when the supply frequency causes the voltages across L and C to be equal and opposite in phase.

In a series RLC circuit this becomes a frequency point where the inductive reactance of the inductor becomes equal in value to the capacitive reactance of the capacitor. In other words, $X_L = X_C$ the point at which this occurs is called the Resonant Frequency point (f_r) of the circuit and as we are analysing a series RLC circuit the resonance frequency produces a series Resonance.

Series Resonance circuit are one of the most important circuit used electrical and electronics circuits. They can be found in various form and such as in AC mains filters, noise filters and also in radio and television tuning circuits providing a very selective tuning circuit for receiving of the different frequency channels.