

Unit I: Assessment Question Bank

Lecture -33

1. Two impedances Z_1 and Z_2 are connected in parallel. The first branch takes a leading current of 16A and has resistance of 5Ω and while the second branch takes a lagging current at a power factor of 0.8. The total power supplied is 5kW and the applied voltage being $(100+j200)$ V. Determine the complex expressions for branch currents and the total current. Also draw the complete phasor diagram representing the circuit taking voltage as the reference phasor.

2. A coil having a resistance of 4Ω and an inductance of 1H is connected in parallel with a circuit comprising a similar coil in series with a capacitor C F and a non inductive resistor R. Calculate the values of C and R so that the currents in either branch of the arrangement are equal but differ in phase by 90° . Frequency 50Hz.