

ASSIGNMENT-2

- 1- Two circuits, the impedances of which are given by $Z_1 = 10 + j15 \Omega$ & $Z_2 = 6 - j8 \Omega$ are connected in parallel. If the total current supplied is 15 A, what is the power taken by each branch?
- 2- A voltage of $250 \angle 0^\circ$ V is applied to an inductive circuit of impedance $(5 + j10) \Omega$. Calculate
 (i) the circuit current
 (ii) the power factor
 (iii) the power consumption
 (iv) the apparent power
 (v) the reactive power
- 3- 3 alternating currents: $i_1 = 150 \sin(\omega t + \pi/4)$, $i_2 = 40 \sin(\omega t + \pi/2)$ & $i_3 = 80 \sin(\omega t - \pi/6)$ are fed simultaneously to a common conductor. Find the equation of the resultant current & its rms value.
- 4- A coil of 0.8 P.f. is connected in series with a 100 μ F condenser. The frequency of supply is 50 Hz. The potential drop across the coil is found to be equal to the potential drop across the capacitor. Calculate the resistance & the inductance of the coil.
- 5- A resistance of 15Ω , an inductance of 200 mH, and a capacitance of 100 μ F are connected in series. A 200V, 50 Hz, ac supply is connected across this series ckt. Calculate: (i) the impedance, (ii) the current, (iii) the power factor, (iv) voltage across R, L & C.