ASSIGNMENT No. 2

Q1 Find selectivity, half power frequencies and Bandwidth for series RLC resonant circuit.

Q2 A coil of resistance 1.5Ω and impedance 6Ω is placed in series with a second coil of resistance 2Ω. When a voltage of 230V, 50 Hz is applied to the circuit, the current flowing through the circuit is 7 A. Find the inductance of second coil.

Q3 Two currents i_1 & i_2 are given by the expression $i_1 = 15 \sin(\omega t + \pi/3)$ and $i_2 = 5 \sin(\omega t - \pi/3)$

Find $i_1 - i_2$

Q4 A coil of resistance 10Ω and inductance 0.1H is connected in series with a condenser of capacitance 150μF across a 200V, 50 Hz supply. Determine (1) Impedance (2) current (3) Power Factor (4) voltage across the coil (5) voltage across the condenser.

Q5 An ac circuit consists of pure resistance and a coil in series. The power dissipated in the resistance is 500 W and the drop across it is 100V. The power dissipated in the coil is 100 W and drop across it is 50V. Find the inductive reactance of the coil and supply voltage.

Q6 Find out the active power delivered in Watt, to an impedance $Z = (4 - j3)\Omega$ by a current $i = 5\cos(100\pi t + 100)$ A

Q7 A periodic waveform has been shown

Determine (1) frequency (2) RMS, Avg Value (3) Form Factor