

PVPP College of Engineering, Mumbai

Department of General Engineering

Practice Problems SH-2015

Sem-1 All Branches Sub: BEEE

- Q1** A coil of 0.866 lagging power factor is connected in series with a $10\mu\text{F}$ Capacitor and the combined circuit is connected across a 200Hz frequency supply. The potential difference across the coil is equal to the potential difference across the capacitor. Find the Resistance and Inductance of the coil
- Q2** Explain with appropriate graph the variation of inductive reactance, capacitive reactance, impedance and power factor and circuit-current with reference to variation in frequency in a series R-L-C Circuit. Derive an expression for Bandwidth expressed in terms of Quality factor and Resonant frequency.
- Q3** Two wattmeters are connected to measure power in three phase circuit. One of the wattmeters reads 7kW when the load power factor is unity. If the load power factor is changed to 0.707 lagging without changing the total input power, calculate the readings of both the wattmeters
- Q4** Prove the condition for maximum efficiency of a single phase transformer. Explain the reason why iron loss is called as constant loss and copper loss as variable loss in a transformer.
- Q5** (a) Explain in brief the volt-ampere characteristics of p-n junction diode
- Q5** (b) Prove that the instantaneous sum of three phase voltages for a balanced three phase system is zero
- Q6** Two wattmeters are connected to measure power in three phase circuit. One of the wattmeters reads 7kW when the load power factor is unity. If the load power factor is changed to 0.707 lagging without changing the total input power, calculate the readings of both the wattmeters
- Q7** A balanced delta connected load impedance with a per phase value: $Z_{ph} = 50\angle 60^\circ \Omega$ is connected across a three phase 400V, 50 Hz Mains. Calculate the active power consumed per phase and the total three phase power. Also calculate reactive VAR drawn from the mains.
- Q8** A coil has a load impedance of $Z_c = 20 \Omega$ with 0.5 lagging p.f. is connected across a single phase 400V, 50 Hz Mains. Calculate value of a capacitor which would be connected across the coil so that the combined circuit current will be in phase with the supply voltage.

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