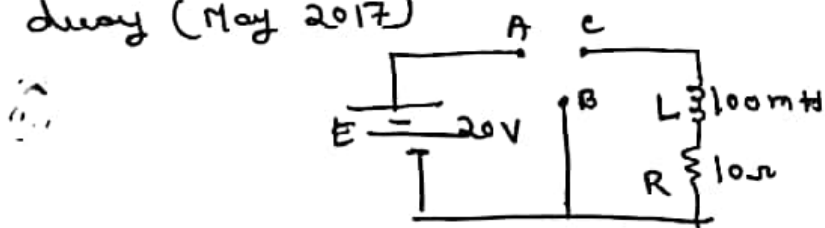


I PUC ELECTRONICS

- ① A Series circuit with $R = 100\ \Omega$, $L = 10\text{mH}$, $C = 10\ \mu\text{F}$ is connected to a 220V , 50Hz AC Source. Calculate Total impedance, circuit current and resonant frequency of the LCR circuit (March 2014)
- ② A Series LCR circuit with $R = 100\ \Omega$, $L = 1\text{mH}$ and $C = 1000\ \mu\text{F}$. An AC $V = 200\text{ Sin } 100\pi t$ is applied to it. Calculate total impedance, power factor and resonant frequency of the LCR circuit (May 2014)
- ③ a) An inductor of 20mH is connected in Series with a resistor of $50\ \Omega$. The combination is connected to 220V , 50Hz Source. Find the current in the circuit (March 2015)
- b) Determine the time constant of an RC circuit when $R = 20\text{K}\ \Omega$, $C = 0.05\ \mu\text{F}$ (March 2015)
- 4) Calculate the resonant frequency of a Series resonant circuit consisting of $R = 10\text{K}\ \Omega$, $L = 20\text{mH}$ and $C = 30\ \mu\text{F}$ (May 2015)
- 5) A $20\ \Omega$ resistance in Series with inductance $X_L = 60\ \Omega$ and capacitance $X_C = 30\ \Omega$. The applied voltage is $V = 60\text{mV}$ with 50Hz . Calculate impedance, current and phase angle (March 2016)
- 6) A Series RLC circuit is connected to an AC voltage source is 220V , 50Hz . If the voltage across the resistor is 65V , voltage across the capacitor is 45V and across the inductor is 240V . Calculate (1) current flowing in a

circuit (ii) Value of the capacitor (iii) Value of an inductor (March 2017)

- 7) Calculate (i) Time constant of the circuit (ii) Current through L at the time equal to time constant of the circuit during growth (iii) Current through L at $t = 1/100$ s during decay (May 2017)



- 8) A 10Ω resistance in series with inductance $X_L = 80\Omega$ and capacitance $X_C = 60\Omega$. The applied voltage is $V = 50$ mV with 50 Hz. Calculate impedance, current and phase angle (March 2018)
- 9) An inductor of 20 mH is connected in series with a resistor of 50Ω . The combination is connected to 220 V, 50 Hz source. Find a) impedance b) current c) phase angle in the circuit (April 2018, March 2019)
- 10) a) Calculate the voltage across the capacitor and maximum current during charging at $t = 15$ in a DC circuit containing $R = 1$ M Ω and $C = 1$ μ F connected to DC power supply of 10 V b) Find another time constant for $C = 1$ μ F and $R = 10$ k Ω (May 2019)