Advance Electricity Lab

Exp. (1):

1) Define Resonance?
2) Define Quality Factor?
3) Define Band Width?
4) Prove $f_0 = \frac{1}{2\pi\sqrt{LC}}$

Exp. (1):

1) What is Effective Current?
2) Define Capacitive Reactance(X_C)?
3) Define Inductive Reactance(X_L)?
4) How series resonance occurs?

Exp. (1):

1) Sketch the electrical circuit for series resonance?
2) What do you mean by RLC circuit?
3) Is $V_c = V_L$ in series resonance circuit?
4) Is the circuit current reaching its maximum (I_{Max}) in series resonance circuit?

Exp. (1):

1) Is $Z = R$ reach its minimum at resonance, in series resonance circuit?
2) Mention six characteristics of series resonance circuit?
3) How Quality Factor changes when the resistor is increased?
4) How Band Width changes when the resistor is increased?

Exp. (1):

1) What is the relation between Quality factor and Band width?
2) Is $X_L > X_C$ above the resonance, in series resonance circuit?
3) Draw the circuit diagram (inductance part)?
4) Is $X_L > X_C$ below the resonance, in series resonance circuit?

Exp. (1):

1) Mention six characteristics of series resonance circuit?
2) Sketch the electrical circuit for series resonance?
3) Define Quality Factor?
4) Define Capacitive Reactance(X_C)?

Exp. (2):

1) Define High Pass Filter Frequency?
2) Define Low Pass Filter Frequency?
3) Define Band Pass Filter Frequency?
4) Define Band Stop Pass Filter Frequency?

Exp. (2):

1) Define Cut Off frequency?
2) Write an equation for Cut Off frequency in Low Pass Filter Frequency?
3) Write an equation for Cut Off frequency in High Pass Filter Frequency?
4) What is the unit of Cut Off frequency?

Exp. (2):

1) Prove that $\boldsymbol{f_c = \frac{R}{2\pi L}}$ **?**
2) Prove that $\boldsymbol{f_c = \frac{1}{2\pi RC}}$ **?**
3) Compare High Pass Filter Frequency and Low Pass Filter Frequency?
4) Compare Band Pass Filter Frequency and Band Stop Pass Filter Frequency?

Exp. (2):

1) Sketch the electrical circuit for High Pass Filter Frequency?
2) Sketch the electrical circuit for Low Pass Filter Frequency?
3) Define Cut Off frequency?
4) Write an equation for Cut Off frequency in Low Pass Filter Frequency?

Exp. (2):

1) Define Low Pass Filter Frequency?
2) Define Band Pass Filter Frequency?
3) Sketch the electrical circuit for High Pass Filter Frequency?
4) Define Cut Off frequency?

Exp. (2):

1) Compare High Pass Filter Frequency and Low Pass Filter Frequency?
2) Compare Band Pass Filter Frequency and Band Stop Pass Filter Frequency?
3) What is the unit of Cut Off frequency?
4) Prove that $\boldsymbol{f_c = \frac{R}{2\pi L}}$ **?**

Exp. (3):

1) Define inductance?
2) Define Capacitance?
3) On what factor does the inductance of inductor depend?
4) On what factor does the capacitance of a capacitor depend?

Exp. (3):

1) Define phasor diagram?
2) Write an equation for r in Capacitance part?
3) What is phase angle?
4) Does current lag or lead in a purely resistive circuit?

Exp. (3):

1) Does current lag or lead in a purely inductive circuit?
2) Does current lag or lead in a purely capacitive circuit?
3) Sketch the electrical circuit for Investigation of Capacitance and Inductance in A.C Circuit.
4) Define inductance?

Exp. (3):

1) On what factor does the inductance of inductor depend?
2) Define Capacitance?
3) Write an equation for r in Capacitance part?
4) What is phase angle?

Exp. (3):

1) Does current lag or lead in a purely resistive circuit?
2) On what factor does the inductance of inductor depend?
3) Define inductance?
4) Define Capacitance?

Exp. (3):

1) What is phasor diagram?
2) Write an equation for r in Capacitance part?
3) What is phase angle?
4) Sketch the electrical circuit for Investigation of Capacitance and Inductance in A.C Circuit.

Exp. (4):

1) Define Resistance?
2) Define Phase Shift?
3) Define Power?
4) How may type of electrical power do we have? Count them?

Exp. (4):

1) Define Reactive Power?
2) Define Apparent Power?
3) State Real Power Equation in your experiment?
4) State Apparent Power Equation in your experiment?

Exp. (4):

1) State Reactive Power Equation in your experiment?
2) Does current lag or lead in a purely resistive circuit?
3) Define Resistance?
4) Define Phase Shift?

Exp. (4):

1) What are the differences between Reactive Power and Apparent Power?
2) What are the differences between Real Power and Apparent Power?
3) State Reactive Power Equation in your experiment?
4) Does current lag or lead in a purely resistive circuit?

Exp. (4):

1) Define Reactive Power?
2) Define Apparent Power?
3) Define Real (true, active) Power?
4) Does current lag or lead in a purely capacitive circuit?

Exp. (4):

1) What are the differences between Reactive Power and Apparent Power?
2) Define Phase Shift?
3) Does current lag or lead in a purely capacitive circuit?
4) State Apparent Power Equation in your experiment?

Exp. (5):

1) Define Thevenin's theorem?
2) Why theoretical value and practical value of R_{Th}doesn't match with each other?
3) What is Resistance?
4) On what factor does the resistance of a resistor depend?

Exp. (5):

1) On what factor does the resistance of a resistor depend?
2) Write all steps that you apply to simplify a complex circuit by using Thevenin's theory?
3) How do you get V_{Th} practically? Write its steps?
4) Write an equation for I_L?

Exp. (5):

1) Define Thevenin's theorem?
2) Write all steps that you apply to simplify a complex circuit by using Thevenin's theory?
3) Write an equation for I_L?
4) Draw the circuit diagram?

Exp. (5):

1) How do you get V_{Th} practically? Write its steps?
2) Define Thevenin's theorem?
3) Define Resistance?
4) On what factor does the resistance of a resistor depend?

Exp. (5):

1) Write all steps that you apply to simplify a complex circuit by using Thevenin's theory?
2) Draw the circuit diagram?
3) On what factor does the resistance of a resistor depend?
4) Write an equation for I_L?

Exp. (5):

1) Define Thevenin's theorem?
2) Draw the circuit diagram?
3) Write an equation for I_L?
4) Define Resistance?

Exp. (6):

1) Define electrical damping?
2) How many types of electrical damping do we have?
3) What is the role of the capacitor in this experiment?
4) What is the role of the inductor (coil) in this experiment?

Exp. (6):

1) Define electrical resonance?
2) Write an equation for damping factor (b)?
3) Write and equation for error ratio ?
4) Define time period?

Exp. (6):

1) What is the role of the capacitor in this experiment?
2) Write an equation for damping factor (b)?
3) How many types of electrical damping do we have?
4) Draw the circuit diagram?

Exp. (6):

1) Draw the circuit diagram?
2) How many types of electrical damping do we have?
3) What is the role of the capacitor in this experiment?
4) Write and equation for error ratio ?

Exp. (6):

1) What is electrical damping?
2) How many types of electrical damping do we have?
3) Draw the circuit diagram?
4) Write an equation for damping factor (b)?

Exp. (6):

1) What is the role of the capacitor in this experiment?
2) Draw the circuit diagram?
3) How many types of electrical damping do we have?
4) Write and equation for error ratio ?

Exp. (7):

1) Why is magnetic field at the center of solenoid coil higher than the magnetic field on its sides?
2) Define Biot-Savart Law?
3) What is the unit of magnetic field?
4) Write an equation for magnetic field?

Exp. (7):

1) Why we get some fixed value of magnetic field strength at the center of solenoid coil?
2) Define permeability?
3) What is the unit of permeability?
4) Define Biot-Savart Law?

Exp. (7):

1) If the circuit current is increased what will happen to the magnetic field?
2) What is the unit of magnetic field?
3) Write an equation for magnetic field?
4) Why is magnetic field at the center of solenoid coil higher than the magnetic field on its sides?

Exp. (7):

1) Define Biot-Savart Law?
2) Why we get some fixed value of magnetic field strength at the center of solenoid coil?
3) Draw the circuit diagram?
4) Write an equation for magnetic field?

Exp. (7):

1) Define Biot-Savart Law?
2) Why is magnetic field at the center of solenoid coil higher than the magnetic field on its sides?
3) Define Magnetic field?
4) What is the unit of permeability?

Exp. (7):

1) Draw the circuit diagram?
2) Write an equation for magnetic field?
3) Define Biot-Savart Law?
4) Define Magnetic field?