1. An alternating current is given by the expression .

i=50 sin 628 t.

Determine

a.       Maximum value of the current **[ Ans: 50A]**

b.      r.m.s. value of current **[Ans: 35.355 A]**

c.       Frequency of the current **[ Ans: 100Hz]**

d.      Value of current after t = 0.00625 seconds. **[Ans : -35.3A]**

**e.** Time taken by the current to reach a value of 20A. **[Ans: t =.00147s]**

2. A coil having a resistance of 12 ohm and an inductance of 0.1 H is connected across a 100V, 50 Hz supply. Calculate

a.       Reactance and the impedance of the coil.

b.      Current

c.       Phase difference

d.      Power Factor

3. A resistance of 15 ohms and capacitor of 150 µ F capacitance are connected in series across a 230V, 50 Hz supply. Calculate

a.       Impedance of the circuit

b.      Current

c.       Power Factor and Phase angle.

d.      Power consumed in the circuit

4. In a R – L series circuit a voltage of 100 V at 25 Hz produces one ampere while the same voltage at 75 Hz produces half ampere. Find the value of **R** and **L**.

5. A coil of resistance 10 ohm and inductance 0.1H is connected in series with a condenser of capacitance 150 micro farad across a 200V, 50Hz supply. Determine (i)impedance (ii)current (iii)power factor (iv)voltage across the coil (v)voltage across the condenser.  
6. Three similar coils each having a resistance of 15 ohm and an inductance of 0.04 H are connected in star to a 3-phase 50 Hz supply,200 volts between lines. Calculate the line current. If they are now connected in delta, calculate the phase current, line current and the total power absorbed in each phase.

7.The voltage applied to a circuit is 100cos(100πt) volts and the circuit draws a current of 10sin(100πt+π/4) amperes. Taking the voltage as the reference phasor, the phasor representation of the current in amperes is

a.10 -π/4

b.12 π/4

c.10.14 π/4

d.10 -π/4