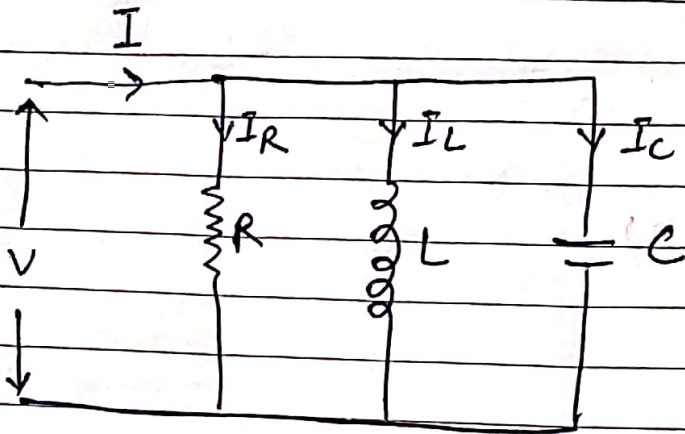


Parallel RLC Circuit :



$$I_R = \frac{V}{R} \text{ (amp)}$$

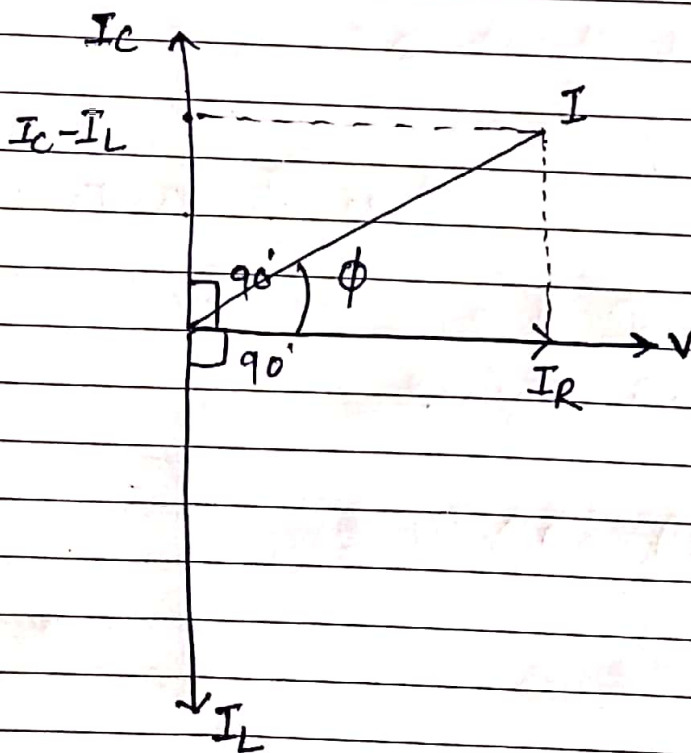
$$I_L = \frac{V}{jX_L} \text{ (amp) (lag)}$$

$$I_C = \frac{jV}{X_C} \text{ (amp) (lead)}$$

$$X_L = \omega L = 2\pi fL$$

$$X_C = \frac{1}{\omega C} = \frac{1}{2\pi fC}$$

① phasor diagram :-



assume $I_C > I_L$

August '11

Monday	1	8	15	22	29
Tuesday	2	9	16	23	30
Wednesday	3	10	17	24	31
Thursday	4	11	18	25	
Friday	5	12	19	26	
Saturday	6	13	20	27	
Sunday	7	14	21	28	

Notes

Appointment

Admittance

$$I = I_R + I_L + I_C$$

$$I = \frac{V}{R} + \frac{V}{jX_L} + \frac{jV}{X_C}$$

$$\frac{I}{V} = \frac{1}{R} + \frac{1}{jX_L} + \frac{j}{X_C}$$

$$\frac{I}{V} = \frac{1}{R} - \frac{j}{X_L} + \frac{j}{X_C}$$

$$Y = G - jB_L + jB_C$$

$$Y = G + j(B_C - B_L) \quad \text{Rectangular form}$$

$$|Y| = \sqrt{G^2 + (B_C - B_L)^2} \quad (\text{r.m.s.}) \text{ Magnitude form.}$$

Power factor

$$\cos \phi = \frac{I_R}{I}$$

$$= \frac{V/R}{V \cdot Y}$$

$$= \frac{V \cdot G}{V \cdot Y}$$

$$\cos \phi = \frac{G}{Y}$$

$$\sin \phi = \frac{I_C - I_L}{I}$$

$$= \frac{\frac{V}{X_C} - \frac{V}{X_L}}{V \cdot Y}$$

$$= \frac{V B_C - V B_L}{V \cdot Y}$$

$$= \frac{B_C - B_L}{Y}$$

September '11

Monday	5	12	19	26	
Tuesday	6	13	20	27	
Wednesday	7	14	21	28	
Thursday	1	8	15	22	29
Friday	2	9	16	23	30
Saturday	3	10	17	24	
Sunday	4	11	18	25	

Appointment

① Current : \rightarrow

$$I = V \cdot Y$$

$$I = V \cdot \sqrt{G^2 + (B_C - B_L)^2} \quad (\text{amp})$$

② Active Power : \rightarrow

$$P = VI \cos \phi$$

$$= V \cdot V \cdot Y \cdot \frac{G}{Y}$$

$$= V^2 G \quad (\text{Watt})$$

③ Reactive Power : \rightarrow

$$Q = VI \sin \phi$$

$$= V \cdot V \cdot Y \cdot \frac{(B_C - B_L)}{Y}$$

$$= V^2 (B_C - B_L) \quad (\text{VAR})$$

August 11

Monday	1	8	15	22	29
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Wednesday	3	10	17	24	31
Thursday	4	11	18	25	
Friday	5	12	19	26	
Saturday	6	13	20	27	
Sunday	7	14	21	28	

Notes

Appointment

Apparent Power :-

$$S = V I \quad (VA)$$

$$= V \cdot V \cdot Y$$

$$S = V^2 Y$$