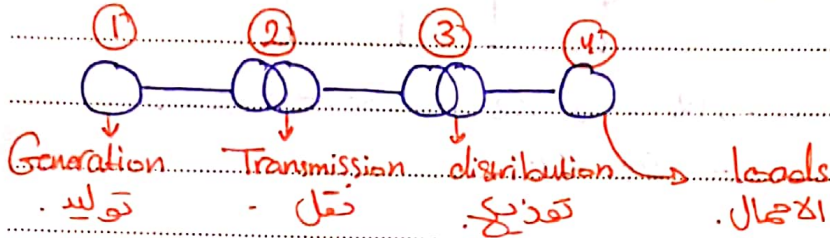


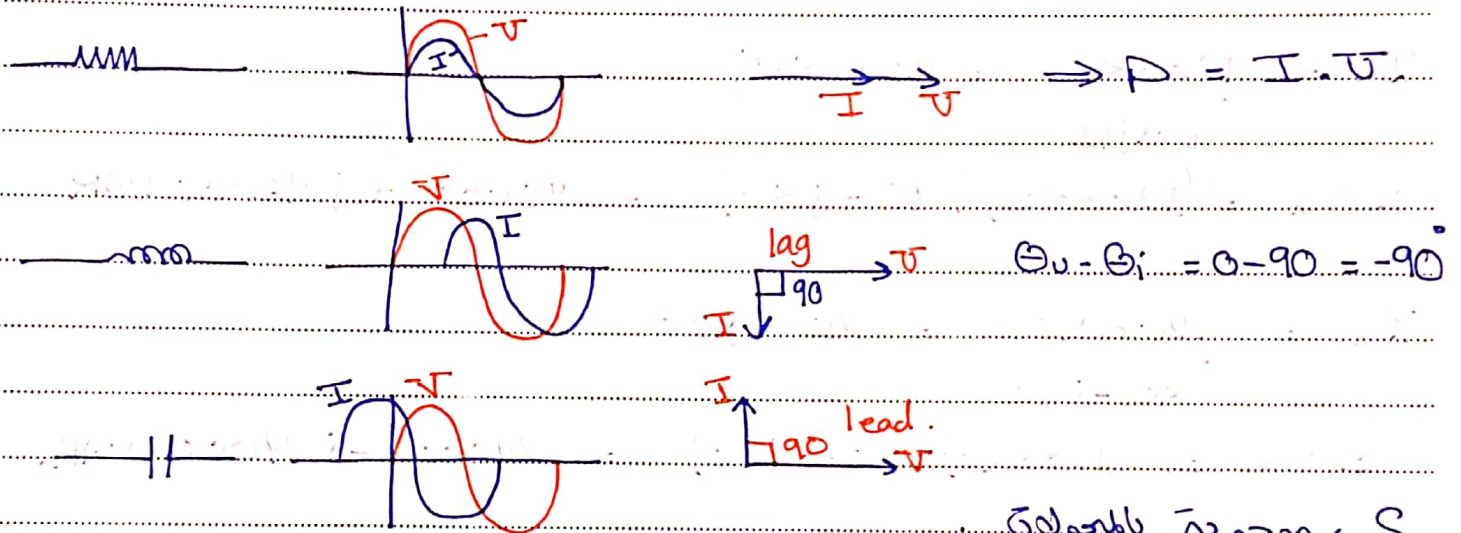
* Power System 8 -

a power system can be subdivided into four major parts:

* مكونات النظام الكهربائي



* تأثيرات الجهد على lead و lag في reference voltage



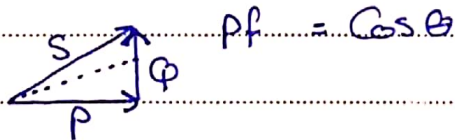
$$X_L = j\omega L$$

S ← موجود بالمولد

$$X_C = \frac{1}{j\omega C}, \quad \frac{1}{j} = -j$$

P ← الاجمال

Q ← غير مرغوب

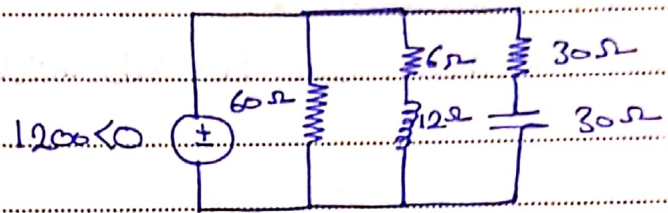


$$* \text{Complex power} \rightarrow S = \underline{V} \underline{I}^* = P + jQ$$

نصف المرافق حتى يتأصل مع اتجاه التيار المرجعي

* Example (2.2) :-

Find the power by each load?



$$Z_1 = 60 + j0, \quad Z_2 = 6 + j12, \quad Z_3 = 30 - j30$$

$$I_1 = \frac{1200 \angle 0}{60 \angle 0} = 20 \text{ A} = 20 \angle 0$$

$$\therefore S_1 = I^* V = (20 \angle 0)(1200 \angle 0) = 24 \text{ kW VAR}$$

$$I_2 = \frac{1200 \angle 0}{6 + j12} = 40 - j80$$

$$\therefore S_2 = (1200 \angle 0)(40 + j80) = 48000 + j96000 \text{ VAR}$$

$$I_3 = \frac{1200 \angle 0}{30 - j30} = 20 + j20$$

$$\therefore S_3 = (1200 \angle 0)(20 - j20) = 24000 - j24000 \text{ VAR}$$