

**7.11** For an *LCR* circuit, the power transferred from the driving source to the driven oscillator is  $P = I^2 Z \cos \phi$ .

(a) Here, the power factor  $\cos \phi \geq 0$ ,  $P \geq 0$ .

(b) The driving force can give no energy to the oscillator ( $P = 0$ ) in some cases.

(c) The driving force cannot syphon out ( $P < 0$ ) the energy out of oscillator.

(d) The driving force can take away energy out of the oscillator.

11.  $P = I^2 Z \cos \phi$

Option (a) Power factor  $\cos \phi = \frac{R}{Z}$

(✓)

As  $R \geq 0$  &  $Z > 0 \Rightarrow \cos \phi$  is positive  
 $\Rightarrow P$  is positive

Option (b) In case  $R = 0 \Rightarrow \cos \phi = \frac{R}{Z} = 0$

(✓)

$\therefore P = 0$  (i.e. No energy given)

Option (c) As  $P \geq 0 \Rightarrow P$  can never be negative

(✓)

$\Rightarrow P < 0$  is false.

Option (d) As  $P \geq 0$  and never  $P < 0$

(X)

$\Rightarrow$  Not possible to take away energy from oscillator.

$\Rightarrow$  Option (a), (b), (c) is answer.