NCERT Analog- 12.7.7

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Question 12.7.7:

1) A charged $30\mu F$ capacitor is connected to a $27mH$ inductor. What is the angular frequency of free oscillations of the circuit?

Solution:

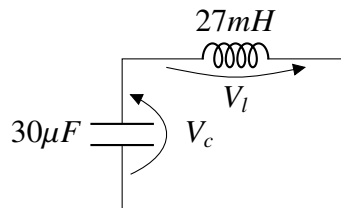| Symbol	Description	Value
C	Capacitance	$30\mu F$
L	Inductance	$27mH$
ω	Angular Frequency	??

TABLE 1
INPUT PARAMETERS

Fig. 1. LC Circuit Diagram

$$\omega = \frac{1}{\sqrt{LC}} \tag{1}$$

$$= \frac{1}{\sqrt{(30 \times 10^{-6}) \times (27 \times 10^{-3})}} \tag{2}$$

$$\approx \frac{1}{\sqrt{8.1 \times 10^{-7}}} \approx 1.11 \times 10^3 \text{ rad/s} \tag{3}$$