

NEET ALTERNATING CURRENT — LC OSCILLATIONS — PYQS

Max. Marks: 12

Questions: 3

Section A (MCQ) — 3 questions

- Q.1** The amplitude of the charge oscillating in a circuit decreases exponentially as $Q = Q_0 e^{-Rt/2L}$, where Q_0 is the charge at $t = 0$ s. The time at which charge amplitude decreases to $0.50Q_0$ is nearly:
 [Given that $R = 1.5 \Omega$, $L = 12$ mH, $\ln(2) = 0.693$]

[RE-NEET (UG) 2024]

- (1) 19.01 ms (2) 11.09 ms
 (3) 19.01 s (4) 11.09 s

 Scan or tap for the
 full solution


- Q.2** A condenser of capacity C is charged to a potential difference of V_1 . The plates of the condenser are then connected to an ideal inductor of inductance L . The current through the inductor when the potential difference across the condenser reduces to V_2 is

[AIPMT 2010 (Mains)]

- (1) $\left(\frac{C(V_1 - V_2)^2}{L}\right)^{\frac{1}{2}}$ (2) $\frac{C(V_1^2 - V_2^2)}{L}$
 (3) $\frac{C(V_1^2 + V_2^2)}{L}$ (4) $\left(\frac{C(V_1^2 - V_2^2)}{L}\right)^{\frac{1}{2}}$

 Scan or tap for the
 full solution


- Q.3** A transistor-oscillator using a resonant circuit with an inductor L (of negligible resistance) and a capacitor C in series produces oscillations of frequency f . If L is doubled and C is changed to $4C$, the frequency will be

[AIPMT 2006]

- (1) $f/2$ (2) $f/4$ (3) $8f$ (4) $f/2\sqrt{2}$

 Scan or tap for the
 full solution


ANSWER KEY

Ques.	1	2	3								
Ans.	2	4	4								