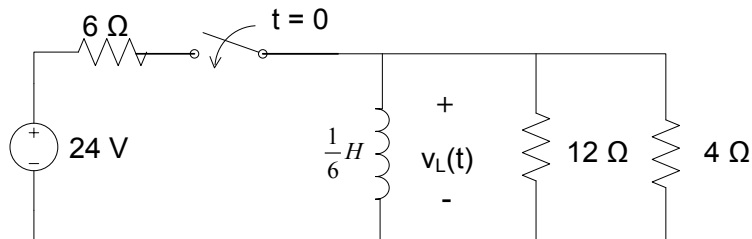## TOPIC
Electricity and Magnetism – Section XI – Question 15

QUESTION
The expression for the inductor voltage $v_L(t)$ for $t > 0$ is

(A) $-12e^{-18t}$
(B) $-2e^{-3t}$
(C) $4 - 4e^{-12t}$
(D) $8e^{-12t}$

HINT
Also, note that the 12Ω and the 4Ω resistors are in parallel to the inductor. So, they have the same voltage drop across them. If the question was asking for the voltage drop across either of the two resistors then to keep things simple we would still solve for $i_L(t)$ then differentiate to get $v_L(t)$ and $v_4(t) = v_{12}(t) = v_L(t)$. Furthermore, the current through the 4Ω resistor would be $v_L(t)/4$ whereas the current through the 12Ω resistor would be $v_L(t)/12$.

CONTRIBUTOR
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