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ELECTRICAL ELECTRONICS

ENG282

QUIZ

1)  $\frac{dT}{dt} = LC(T-25)$

$\frac{dT}{dt}$

$= kdt$

$(T-25)$

$\ln (T-25) = kt + C$

$T-25 = e^{kt+C}$

$T = T_0 e^{kt}$

$T = T_0 e^{kt} + 25$

At  $t = 0$

$10 = T_0 + 25$

$10 - 25 = T_0$

$T_0 = -15$

$T = -15e^{kt} + 25$

$20^\circ = -15e^{kt} + 25$

$\frac{-5}{-15} = \frac{-15e^{kt}}{-15}$

$0.33 = 0$

$k = 0.33$

$-1.09 = k$

$k = -0.219$

$T = -154 - 0.219t + 25$

Initial time  $T(0) = 10^\circ C$

After 5ms  $= 20^\circ C$

$T_0 = 25^\circ C$

