d_cp2.14

The LaTex code that creates this quiz is released to the Public Domain
Attribution for each question is documented in the Appendix

Tuesday 30th October, 2018

Latex markup at
https://en.wikiversity.org/wiki/special:permalink/1892308

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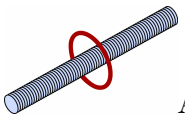
Contents

1 Quiz

1.  A long solenoid has a length 0.75 meters, radius 3.1 cm, and 500 turns. It surrounds coil of radius 5.9 meters and 10turns. If the current in the solenoid is changing at a rate of 200 A/s, what is the emf induced in the surounding coil?[1]

   A. 1.445E-02 V

   B. 1.589E-02 V

   C. 1.748E-02 V

   D. 1.923E-02 V

   E. 2.115E-02 V

2. An induced emf of 2.0V is measured across a coil of 50 closely wound turns while the current throuth it increases uniformly from 0.0 to 5.0A in 0.1s. What is the self-inductance of the coil?[2]

   A. 3.306E-02 H

   B. 3.636E-02 H

   C. 4.000E-02 H

   D. 4.400E-02 H

   E. 4.840E-02 H

3. A washer has an inner diameter of 2.5 cm and an outer diamter of 4.5 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 3.5mm$, and $n = 2.7$. What is the volume of the washer?[3]

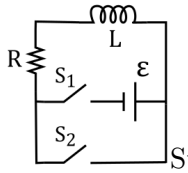
   A. 6.191E-01 cm^3

   B. 6.810E-01 cm^3

   C. 7.491E-01 cm^3

   D. 8.240E-01 cm^3

   E. 9.065E-01 cm^3

4. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =2.0 s if ε= 2.0 V , R = 4.0 Ω , and L = 4.0 H?[4]

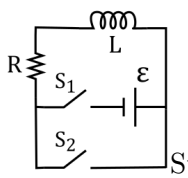
   A. 3.603E-01 V

   B. 4.323E-01 V

   C. 5.188E-01 V

   D. 6.226E-01 V

   E. 7.471E-01 V

5. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.0

A. -1.730E+00 s

B. -1.903E+00 s

C. -2.093E+00 s

D. -2.303E+00 s

E. -2.533E+00 s

6. In an LC circuit, the self-inductance is 0.02 H and the capacitance is 8.000E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 1.200E-05 C. How long does it take for the capacitor to become completely discharged?[5]

A. 6.283E-04 s

B. 6.912E-04 s

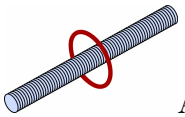
C. 7.603E-04 s

D. 8.363E-04 s

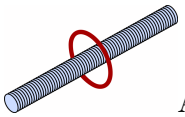
E. 9.199E-04 s

2 Renditions

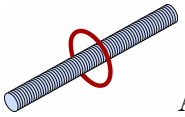
2.1

1.  A long solenoid has a length 0.714 meters, radius 4.95 cm, and 578 turns. It surrounds coil of radius 8.72 meters and 16turns. If the current in the solenoid is changing at a rate of 248 A/s, what is the emf induced in the surounding coil?

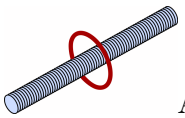
   A. 6.667E-02 V
   B. 7.334E-02 V
   C. 8.067E-02 V
   D. 8.874E-02 V
   E. 9.762E-02 V

2.  A long solenoid has a length 0.841 meters, radius 3.81 cm, and 516 turns. It surrounds coil of radius 9.2 meters and 11turns. If the current in the solenoid is changing at a rate of 190 A/s, what is the emf induced in the surounding coil?

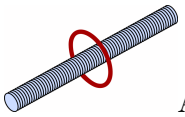
   A. 1.735E-02 V
   B. 1.908E-02 V
   C. 2.099E-02 V
   D. 2.309E-02 V
   E. 2.540E-02 V

3.  A long solenoid has a length 0.605 meters, radius 4.26 cm, and 597 turns. It surrounds coil of radius 9.08 meters and 12turns. If the current in the solenoid is changing at a rate of 250 A/s, what is the emf induced in the surounding coil?

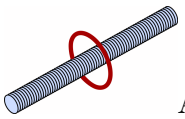
   A. 4.551E-02 V
   B. 5.006E-02 V
   C. 5.507E-02 V
   D. 6.057E-02 V
   E. 6.663E-02 V

4.  A long solenoid has a length 0.822 meters, radius 4.37 cm, and 515 turns. It surrounds coil of radius 6.12 meters and 14turns. If the current in the solenoid is changing at a rate of 118 A/s, what is the emf induced in the surounding coil?

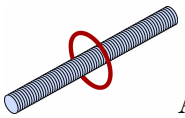
   A. 2.229E-02 V
   B. 2.451E-02 V
   C. 2.697E-02 V
   D. 2.966E-02 V
   E. 3.263E-02 V

5. 
A long solenoid has a length 0.777 meters, radius 3.45 cm, and 557 turns. It surrounds coil of radius 6.01 meters and 10turns. If the current in the solenoid is changing at a rate of 184 A/s, what is the emf induced in the surounding coil?

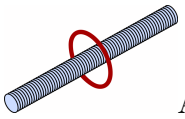
A. 1.463E-02 V
B. 1.609E-02 V
C. 1.770E-02 V
D. 1.947E-02 V
E. 2.142E-02 V

6. 
A long solenoid has a length 0.567 meters, radius 3.35 cm, and 555 turns. It surrounds coil of radius 5.73 meters and 9turns. If the current in the solenoid is changing at a rate of 281 A/s, what is the emf induced in the surounding coil?

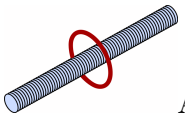
A. 3.446E-02 V
B. 3.790E-02 V
C. 4.169E-02 V
D. 4.586E-02 V
E. 5.045E-02 V

7. 
A long solenoid has a length 0.794 meters, radius 4.45 cm, and 568 turns. It surrounds coil of radius 6.81 meters and 9turns. If the current in the solenoid is changing at a rate of 246 A/s, what is the emf induced in the surounding coil?

A. 3.890E-02 V
B. 4.279E-02 V
C. 4.707E-02 V
D. 5.177E-02 V
E. 5.695E-02 V

8. 
A long solenoid has a length 0.864 meters, radius 3.37 cm, and 522 turns. It surrounds coil of radius 7.87 meters and 13turns. If the current in the solenoid is changing at a rate of 290 A/s, what is the emf induced in the surounding coil?

A. 2.917E-02 V
B. 3.208E-02 V
C. 3.529E-02 V
D. 3.882E-02 V
E. 4.270E-02 V

9. 
A long solenoid has a length 0.974 meters, radius 4.72 cm, and 587 turns. It surrounds coil of radius 8.65 meters and 17turns. If the current in the solenoid is changing at a rate of 146 A/s, what is the emf induced in the surounding coil?

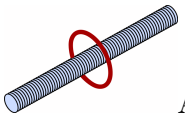
A. 2.823E-02 V

B. 3.105E-02 V

C. 3.416E-02 V

D. 3.757E-02 V

E. 4.133E-02 V

10.  A long solenoid has a length 0.896 meters, radius 4.28 cm, and 550 turns. It surrounds coil of radius 6.65 meters and 9turns. If the current in the solenoid is changing at a rate of 204 A/s, what is the emf induced in the surounding coil?

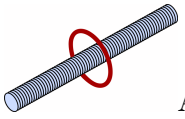
A. 2.328E-02 V

B. 2.560E-02 V

C. 2.817E-02 V

D. 3.098E-02 V

E. 3.408E-02 V

11.  A long solenoid has a length 0.89 meters, radius 3.01 cm, and 505 turns. It surrounds coil of radius 8.65 meters and 18turns. If the current in the solenoid is changing at a rate of 279 A/s, what is the emf induced in the surounding coil?

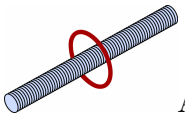
A. 2.646E-02 V

B. 2.911E-02 V

C. 3.202E-02 V

D. 3.522E-02 V

E. 3.874E-02 V

12.  A long solenoid has a length 0.784 meters, radius 3.57 cm, and 553 turns. It surrounds coil of radius 9.49 meters and 16turns. If the current in the solenoid is changing at a rate of 276 A/s, what is the emf induced in the surounding coil?

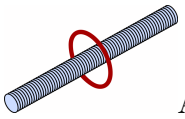
A. 4.476E-02 V

B. 4.924E-02 V

C. 5.416E-02 V

D. 5.958E-02 V

E. 6.553E-02 V

13.  A long solenoid has a length 0.923 meters, radius 4.08 cm, and 579 turns. It surrounds coil of radius 6.86 meters and 14turns. If the current in the solenoid is changing at a rate of 139 A/s, what is the emf induced in the surounding coil?

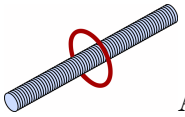
A. 1.894E-02 V

B. 2.083E-02 V

C. 2.291E-02 V

D. 2.520E-02 V

E. 2.772E-02 V



14. A long solenoid has a length 0.634 meters, radius 3.04 cm, and 522 turns. It surrounds coil of radius 9.17 meters and 9turns. If the current in the solenoid is changing at a rate of 283 A/s, what is the emf induced in the surounding coil?

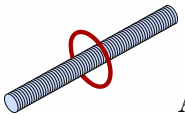
A. 1.986E-02 V

B. 2.185E-02 V

C. 2.404E-02 V

D. 2.644E-02 V

E. 2.908E-02 V



15. A long solenoid has a length 0.559 meters, radius 4.6 cm, and 515 turns. It surrounds coil of radius 9.72 meters and 17turns. If the current in the solenoid is changing at a rate of 189 A/s, what is the emf induced in the surounding coil?

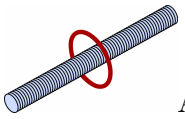
A. 7.062E-02 V

B. 7.768E-02 V

C. 8.545E-02 V

D. 9.400E-02 V

E. 1.034E-01 V



16. A long solenoid has a length 0.759 meters, radius 4.51 cm, and 542 turns. It surrounds coil of radius 9.59 meters and 13turns. If the current in the solenoid is changing at a rate of 272 A/s, what is the emf induced in the surounding coil?

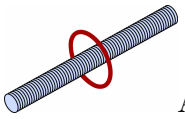
A. 5.791E-02 V

B. 6.370E-02 V

C. 7.007E-02 V

D. 7.708E-02 V

E. 8.478E-02 V



17. A long solenoid has a length 0.703 meters, radius 4.03 cm, and 542 turns. It surrounds coil of radius 6.58 meters and 9turns. If the current in the solenoid is changing at a rate of 208 A/s, what is the emf induced in the surounding coil?

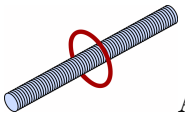
A. 2.643E-02 V

B. 2.907E-02 V

C. 3.198E-02 V

D. 3.518E-02 V

E. 3.869E-02 V

18.  A long solenoid has a length 0.805 meters, radius 4.24 cm, and 536 turns. It surrounds coil of radius 8.5 meters and 16turns. If the current in the solenoid is changing at a rate of 278 A/s, what is the emf induced in the surounding coil?

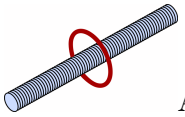
A. 6.604E-02 V

B. 7.264E-02 V

C. 7.990E-02 V

D. 8.789E-02 V

E. 9.668E-02 V

19.  A long solenoid has a length 0.667 meters, radius 4.41 cm, and 517 turns. It surrounds coil of radius 9.18 meters and 9turns. If the current in the solenoid is changing at a rate of 296 A/s, what is the emf induced in the surounding coil?

A. 4.116E-02 V

B. 4.528E-02 V

C. 4.981E-02 V

D. 5.479E-02 V

E. 6.027E-02 V

2.2

1. An induced emf of 4.82V is measured across a coil of 73 closely wound turns while the current throuth it increases uniformly from 0.0 to 4.61A in 0.934s. What is the self-inductance of the coil?

A. 7.337E-01 H

B. 8.071E-01 H

C. 8.878E-01 H

D. 9.765E-01 H

E. 1.074E+00 H

2. An induced emf of 5.33V is measured across a coil of 77 closely wound turns while the current throuth it increases uniformly from 0.0 to 6.57A in 0.648s. What is the self-inductance of the coil?

A. 4.779E-01 H

B. 5.257E-01 H

C. 5.783E-01 H

D. 6.361E-01 H

E. 6.997E-01 H

3. An induced emf of 1.7V is measured across a coil of 81 closely wound turns while the current throuth it increases uniformly from 0.0 to 7.07A in 0.174s. What is the self-inductance of the coil?

A. 3.458E-02 H

B. 3.804E-02 H

C. 4.184E-02 H

D. 4.602E-02 H

E. 5.062E-02 H

4. An induced emf of 5.08V is measured across a coil of 78 closely wound turns while the current throuth it increases uniformly from 0.0 to 5.07A in 0.681s. What is the self-inductance of the coil?

A. 4.660E-01 H

B. 5.127E-01 H

C. 5.639E-01 H

D. 6.203E-01 H

E. 6.823E-01 H

5. An induced emf of 8.76V is measured across a coil of 62 closely wound turns while the current throuth it increases uniformly from 0.0 to 5.59A in 0.611s. What is the self-inductance of the coil?

A. 7.913E-01 H

B. 8.704E-01 H

C. 9.575E-01 H

D. 1.053E+00 H

E. 1.159E+00 H

6. An induced emf of 4.02V is measured across a coil of 85 closely wound turns while the current throuth it increases uniformly from 0.0 to 3.53A in 0.438s. What is the self-inductance of the coil?

A. 4.535E-01 H

B. 4.988E-01 H

C. 5.487E-01 H

D. 6.035E-01 H

E. 6.639E-01 H

7. An induced emf of 6.75V is measured across a coil of 79 closely wound turns while the current throuth it increases uniformly from 0.0 to 7.76A in 0.115s. What is the self-inductance of the coil?

A. 9.094E-02 H

B. 1.000E-01 H

C. 1.100E-01 H

D. 1.210E-01 H

E. 1.331E-01 H

8. An induced emf of 1.92V is measured across a coil of 74 closely wound turns while the current throuth it increases uniformly from 0.0 to 6.38A in 0.69s. What is the self-inductance of the coil?

A. 1.560E-01 H

B. 1.716E-01 H

C. 1.888E-01 H

D. 2.076E-01 H

E. 2.284E-01 H

9. An induced emf of 5.4V is measured across a coil of 95 closely wound turns while the current throuth it increases uniformly from 0.0 to 7.03A in 0.713s. What is the self-inductance of the coil?

A. 5.477E-01 H

B. 6.024E-01 H

C. 6.627E-01 H

D. 7.290E-01 H

E. 8.019E-01 H

10. An induced emf of 6.78V is measured across a coil of 58 closely wound turns while the current throuth it increases uniformly from 0.0 to 3.98A in 0.726s. What is the self-inductance of the coil?

A. 1.022E+00 H

B. 1.124E+00 H

C. 1.237E+00 H

D. 1.360E+00 H

E. 1.496E+00 H

11. An induced emf of 4.7V is measured across a coil of 52 closely wound turns while the current throuth it increases uniformly from 0.0 to 3.08A in 0.961s. What is the self-inductance of the coil?

A. 1.102E+00 H

B. 1.212E+00 H

C. 1.333E+00 H

D. 1.466E+00 H

E. 1.613E+00 H

12. An induced emf of 7.87V is measured across a coil of 66 closely wound turns while the current throuth it increases uniformly from 0.0 to 7.05A in 0.781s. What is the self-inductance of the coil?

A. 7.926E-01 H

B. 8.718E-01 H

C. 9.590E-01 H

D. 1.055E+00 H

E. 1.160E+00 H

13. An induced emf of 6.29V is measured across a coil of 85 closely wound turns while the current throuth it increases uniformly from 0.0 to 2.15A in 0.913s. What is the self-inductance of the coil?

A. 2.428E+00 H

B. 2.671E+00 H

C. 2.938E+00 H

D. 3.232E+00 H

E. 3.555E+00 H

14. An induced emf of 4.13V is measured across a coil of 70 closely wound turns while the current throuth it increases uniformly from 0.0 to 2.63A in 0.133s. What is the self-inductance of the coil?

A. 1.726E-01 H

B. 1.899E-01 H

C. 2.089E-01 H

D. 2.297E-01 H

E. 2.527E-01 H

15. An induced emf of 7.48V is measured across a coil of 95 closely wound turns while the current throuth it increases uniformly from 0.0 to 5.33A in 0.304s. What is the self-inductance of the coil?

A. 2.914E-01 H

B. 3.205E-01 H

C. 3.526E-01 H

D. 3.878E-01 H

E. 4.266E-01 H

16. An induced emf of 3.78V is measured across a coil of 99 closely wound turns while the current throuth it increases uniformly from 0.0 to 6.36A in 0.821s. What is the self-inductance of the coil?

A. 4.033E-01 H

B. 4.436E-01 H

C. 4.880E-01 H

D. 5.367E-01 H

E. 5.904E-01 H

17. An induced emf of 2.9V is measured across a coil of 51 closely wound turns while the current throuth it increases uniformly from 0.0 to 6.89A in 0.806s. What is the self-inductance of the coil?

A. 2.549E-01 H

B. 2.804E-01 H

C. 3.084E-01 H

D. 3.392E-01 H

E. 3.732E-01 H

18. An induced emf of 7.94V is measured across a coil of 94 closely wound turns while the current throuth it increases uniformly from 0.0 to 5.65A in 0.478s. What is the self-inductance of the coil?

A. 5.047E-01 H

B. 5.552E-01 H

C. 6.107E-01 H

D. 6.717E-01 H

E. 7.389E-01 H

19. An induced emf of 1.86V is measured across a coil of 59 closely wound turns while the current throuth it increases uniformly from 0.0 to 2.58A in 0.89s. What is the self-inductance of the coil?

A. 4.821E-01 H

B. 5.303E-01 H

C. 5.833E-01 H

D. 6.416E-01 H

E. 7.058E-01 H

2.3

1. A washer has an inner diameter of 2.57 cm and an outer diamter of 4.14 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.33mm$, and $n = 2.42$. What is the volume of the washer?

A. 7.226E-01 cm^3

B. 7.949E-01 cm^3

C. 8.744E-01 cm^3

D. 9.618E-01 cm^3

E. 1.058E+00 cm^3

2. A washer has an inner diameter of 2.37 cm and an outer diamter of 4.84 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.67mm$, and $n = 2.56$. What is the volume of the washer?

A. 1.570E+00 cm^3

B. 1.727E+00 cm^3

C. 1.900E+00 cm^3

D. 2.090E+00 cm^3

E. 2.299E+00 cm^3

3. A washer has an inner diameter of 2.3 cm and an outer diamter of 4.44 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.31mm$, and $n = 2.66$. What is the volume of the washer?

A. 1.089E+00 cm^3

B. 1.198E+00 cm^3

C. 1.318E+00 cm^3

D. 1.449E+00 cm^3

E. 1.594E+00 cm^3

4. A washer has an inner diameter of 2.62 cm and an outer diamter of 4.79 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.08mm$, and $n = 2.68$. What is the volume of the washer?

A. 1.056E+00 cm^3

B. 1.161E+00 cm^3

C. 1.278E+00 cm^3

D. 1.405E+00 cm^3

E. 1.546E+00 cm^3

5. A washer has an inner diameter of 2.38 cm and an outer diamter of 4.83 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 3.92mm$, and $n = 2.68$. What is the volume of the washer?

A. 1.118E+00 cm^3

B. 1.229E+00 cm^3

C. 1.352E+00 cm^3

D. 1.487E+00 cm^3

E. 1.636E+00 cm^3

6. A washer has an inner diameter of 2.36 cm and an outer diamter of 4.5 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 3.28mm$, and $n = 2.4$. What is the volume of the washer?

A. 1.097E+00 cm^3

B. 1.207E+00 cm^3

C. 1.328E+00 cm^3

D. 1.460E+00 cm^3

E. 1.606E+00 cm^3

7. A washer has an inner diameter of 2.2 cm and an outer diamter of 4.11 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 3.23mm$, and $n = 2.74$. What is the volume of the washer?

A. 7.110E-01 cm^3

B. 7.821E-01 cm^3

C. 8.603E-01 cm^3

D. 9.463E-01 cm^3

E. 1.041E+00 cm^3

8. A washer has an inner diameter of 2.23 cm and an outer diamter of 4.85 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 3.7mm$, and $n = 2.76$. What is the volume of the washer?

A. 1.038E+00 cm^3

B. 1.142E+00 cm^3

C. 1.256E+00 cm^3

D. 1.381E+00 cm^3

E. 1.520E+00 cm^3

9. A washer has an inner diameter of 2.6 cm and an outer diamter of 4.17 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.38mm$, and $n = 2.62$. What is the volume of the washer?

A. 7.196E-01 cm^3

B. 7.916E-01 cm^3

C. 8.707E-01 cm^3

D. 9.578E-01 cm^3

E. 1.054E+00 cm^3

10. A washer has an inner diameter of 2.16 cm and an outer diamter of 4.82 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.22mm$, and $n = 2.8$. What is the volume of the washer?

A. 1.342E+00 cm^3

B. 1.477E+00 cm^3

C. 1.624E+00 cm^3

D. 1.787E+00 cm^3

E. 1.965E+00 cm^3

11. A washer has an inner diameter of 2.12 cm and an outer diamter of 4.47 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.7mm$, and $n = 2.72$. What is the volume of the washer?

A. 1.228E+00 cm^3

B. 1.351E+00 cm^3

C. 1.486E+00 cm^3

D. 1.634E+00 cm^3

E. 1.798E+00 cm^3

12. A washer has an inner diameter of 2.21 cm and an outer diamter of 4.5 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.29mm$, and $n = 2.62$. What is the volume of the washer?

A. 1.325E+00 cm^3

B. 1.457E+00 cm^3

C. 1.603E+00 cm^3

D. 1.763E+00 cm^3

E. 1.939E+00 cm^3

13. A washer has an inner diameter of 2.23 cm and an outer diamter of 4.18 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.42mm$, and $n = 2.62$. What is the volume of the washer?

A. 1.351E+00 cm^3

B. 1.486E+00 cm^3

C. 1.635E+00 cm^3

D. 1.798E+00 cm^3

E. 1.978E+00 cm^3

14. A washer has an inner diameter of 2.75 cm and an outer diamter of 4.87 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.39mm$, and $n = 2.55$. What is the volume of the washer?

A. 7.754E-01 cm^3

B. 8.530E-01 cm^3

C. 9.383E-01 cm^3

D. 1.032E+00 cm^3

E. 1.135E+00 cm^3

15. A washer has an inner diameter of 2.46 cm and an outer diamter of 4.24 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.32mm$, and $n = 2.63$. What is the volume of the washer?

A. 7.499E-01 cm^3

B. 8.249E-01 cm^3

C. 9.074E-01 cm^3

D. 9.982E-01 cm^3

E. 1.098E+00 cm^3

16. A washer has an inner diameter of 2.74 cm and an outer diamter of 4.71 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 3.9mm$, and $n = 2.85$. What is the volume of the washer?

A. 8.141E-01 cm^3

B. 8.955E-01 cm^3

C. 9.850E-01 cm^3

D. 1.084E+00 cm^3

E. 1.192E+00 cm^3

17. A washer has an inner diameter of 2.42 cm and an outer diamter of 4.53 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.47mm$, and $n = 2.8$. What is the volume of the washer?

A. 8.932E-01 cm^3

B. 9.825E-01 cm^3

C. 1.081E+00 cm^3

D. 1.189E+00 cm^3

E. 1.308E+00 cm^3

18. A washer has an inner diameter of 2.31 cm and an outer diamter of 4.19 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 4.14mm$, and $n = 2.86$. What is the volume of the washer?

A. 1.071E+00 cm^3

B. 1.178E+00 cm^3

C. 1.296E+00 cm^3

D. 1.425E+00 cm^3

E. 1.568E+00 cm^3

19. A washer has an inner diameter of 2.75 cm and an outer diamter of 4.62 cm. The thickness is $h = Cr^{-n}$ where r is measured in cm, $C = 3.66mm$, and $n = 2.61$. What is the volume of the washer?

A. 6.960E-01 cm^3

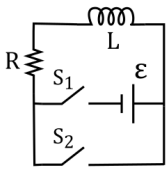
B. 7.656E-01 cm^3

C. 8.421E-01 cm^3

D. 9.264E-01 cm^3

E. 1.019E+00 cm^3

2.4

1. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =1.98 s if ε= 5.75 V , R = 8.07 Ω , and L = 2.84 H?

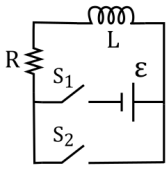
A. 4.109E-01 V

B. 4.930E-01 V

C. 5.917E-01 V

D. 7.100E-01 V

E. 8.520E-01 V

2. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =5.67 s if ε= 5.58 V , R = 3.81 Ω , and L = 3.85 H?

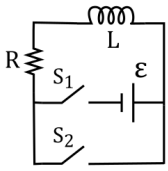
A. 7.037E-01 V

B. 8.444E-01 V

C. 1.013E+00 V

D. 1.216E+00 V

E. 1.459E+00 V

3. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =0.919 s if ε= 6.65 V , R = 6.34 Ω , and L = 1.14 H?

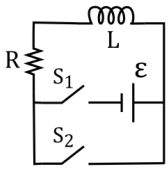
A. 6.033E-01 V

B. 7.240E-01 V

C. 8.688E-01 V

D. 1.043E+00 V

E. 1.251E+00 V

4. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =13.6 s if ε= 6.56 V , R = 2.44 Ω , and L = 8.76 H?

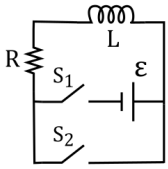
A. 2.627E+00 V

B. 3.153E+00 V

C. 3.783E+00 V

D. 4.540E+00 V

E. 5.448E+00 V

5. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =6.01 s if ε= 5.75 V , R = 5.73 Ω , and L = 7.46 H?

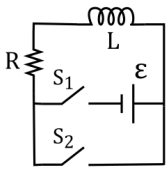
A. 9.936E-01 V

B. 1.192E+00 V

C. 1.431E+00 V

D. 1.717E+00 V

E. 2.060E+00 V

6. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =1.95 s if ε= 8.33 V , R = 6.96 Ω , and L = 2.66 H?

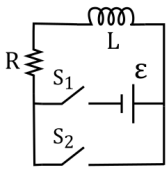
A. 5.736E-01 V

B. 6.884E-01 V

C. 8.260E-01 V

D. 9.912E-01 V

E. 1.189E+00 V

7. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =2.47 s if ε= 7.04 V , R = 7.69 Ω , and L = 5.78 H?

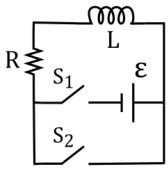
A. 4.249E-01 V

B. 5.099E-01 V

C. 6.118E-01 V

D. 7.342E-01 V

E. 8.810E-01 V

8. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =5.9 s if ε= 7.85 V , R = 6.89 Ω , and L = 7.36 H?

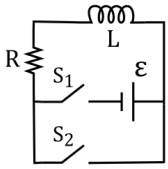
A. 6.567E-01 V

B. 7.880E-01 V

C. 9.456E-01 V

D. 1.135E+00 V

E. 1.362E+00 V

9. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =1.0 s if ε= 4.14 V , R = 7.92 Ω , and L = 2.26 H?

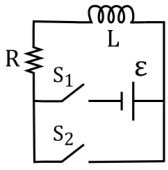
A. 3.523E-01 V

B. 4.227E-01 V

C. 5.073E-01 V

D. 6.087E-01 V

E. 7.304E-01 V

10. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =3.56 s if ε= 6.14 V , R = 7.96 Ω , and L = 6.65 H?

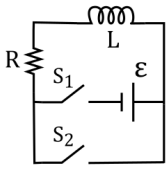
A. 5.281E-01 V

B. 6.337E-01 V

C. 7.605E-01 V

D. 9.126E-01 V

E. 1.095E+00 V

11. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =3.8 s if ε= 3.36 V , R = 5.2 Ω , and L = 3.37 H?

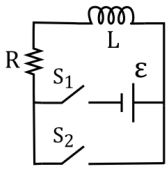
A. 5.369E-01 V

B. 6.443E-01 V

C. 7.732E-01 V

D. 9.278E-01 V

E. 1.113E+00 V

12. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =6.88 s if ε= 2.58 V , R = 5.69 Ω , and L = 6.94 H?

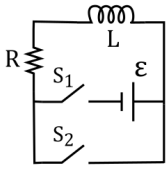
A. 4.518E-01 V

B. 5.422E-01 V

C. 6.506E-01 V

D. 7.807E-01 V

E. 9.369E-01 V

13. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =7.72 s if ε= 2.79 V , R = 1.56 Ω , and L = 3.16 H?

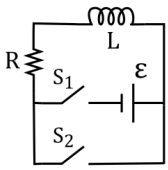
A. 1.214E+00 V

B. 1.457E+00 V

C. 1.749E+00 V

D. 2.099E+00 V

E. 2.518E+00 V

14. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =3.96 s if ε= 4.92 V , R = 5.02 Ω , and L = 5.0 H?

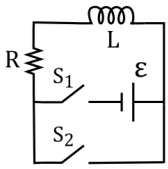
A. 9.618E-01 V

B. 1.154E+00 V

C. 1.385E+00 V

D. 1.662E+00 V

E. 1.994E+00 V

15. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =20.1 s if ε= 5.77 V , R = 1.38 Ω , and L = 5.45 H?

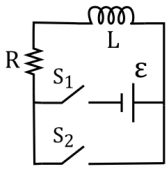
A. 3.463E+00 V

B. 4.156E+00 V

C. 4.987E+00 V

D. 5.984E+00 V

E. 7.181E+00 V

16. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =2.53 s if ε= 6.14 V , R = 4.22 Ω , and L = 1.91 H?

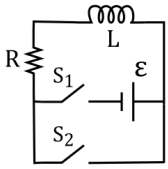
A. 1.007E+00 V

B. 1.208E+00 V

C. 1.450E+00 V

D. 1.739E+00 V

E. 2.087E+00 V

17. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =0.741 s if ε= 7.36 V , R = 5.33 Ω , and L = 1.27 H?

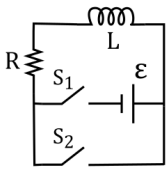
A. 7.635E-01 V

B. 9.162E-01 V

C. 1.099E+00 V

D. 1.319E+00 V

E. 1.583E+00 V

18. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =6.45 s if ε= 7.01 V , R = 7.04 Ω , and L = 8.75 H?

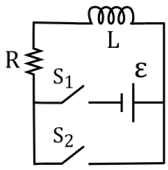
A. 9.902E-01 V

B. 1.188E+00 V

C. 1.426E+00 V

D. 1.711E+00 V

E. 2.053E+00 V

19. 

Suppose switch S_1 is suddenly closed at time t=0 in the figure shown. What is the current at t =1.55 s if ε= 5.97 V , R = 7.74 Ω , and L = 2.62 H?

A. 3.682E-01 V

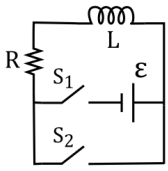
B. 4.418E-01 V

C. 5.301E-01 V

D. 6.362E-01 V

E. 7.634E-01 V

2.5

1. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.79

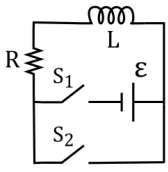
   A. -1.442E+00 s

   B. -1.586E+00 s

   C. -1.744E+00 s

   D. -1.919E+00 s

   E. -2.111E+00 s

2. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.43

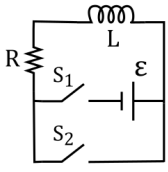
   A. -4.120E-01 s

   B. -4.532E-01 s

   C. -4.985E-01 s

   D. -5.483E-01 s

   E. -6.031E-01 s

3. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.67

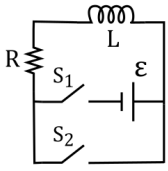
   A. -1.047E+00 s

   B. -1.152E+00 s

   C. -1.267E+00 s

   D. -1.393E+00 s

   E. -1.533E+00 s

4. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.44

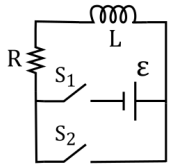
   A. -3.114E-01 s

   B. -3.425E-01 s

C. -3.767E-01 s

D. -4.144E-01 s

E. -4.559E-01 s

5. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.78

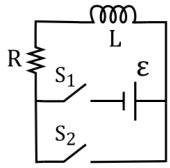
A. -2.296E+00 s

B. -2.525E+00 s

C. -2.778E+00 s

D. -3.056E+00 s

E. -3.361E+00 s

6. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.59

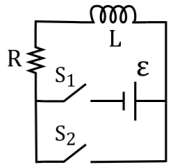
A. -1.614E+00 s

B. -1.775E+00 s

C. -1.952E+00 s

D. -2.148E+00 s

E. -2.362E+00 s

7. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.69

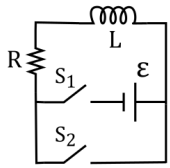
A. -8.773E-01 s

B. -9.651E-01 s

C. -1.062E+00 s

D. -1.168E+00 s

E. -1.284E+00 s

8. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.63

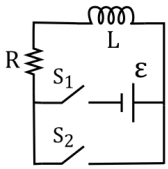
A. -3.137E-01 s

B. -3.451E-01 s

C. -3.796E-01 s

D. -4.176E-01 s

E. -4.593E-01 s

9. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.65

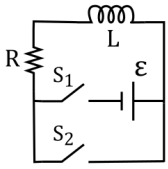
A. -2.476E+00 s

B. -2.724E+00 s

C. -2.996E+00 s

D. -3.296E+00 s

E. -3.625E+00 s

10. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.16

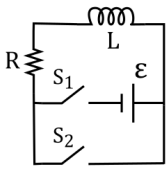
A. -2.110E+00 s

B. -2.321E+00 s

C. -2.553E+00 s

D. -2.809E+00 s

E. -3.090E+00 s

11. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.82

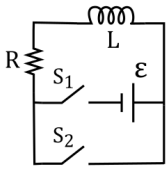
A. -9.593E-01 s

B. -1.055E+00 s

C. -1.161E+00 s

D. -1.277E+00 s

E. -1.405E+00 s

12. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.53

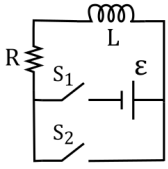
A. -5.192E+00 s

B. -5.711E+00 s

C. -6.282E+00 s

D. -6.910E+00 s

E. -7.601E+00 s

13. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.01

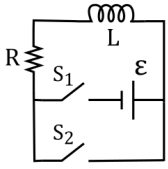
A. -8.659E-01 s

B. -9.525E-01 s

C. -1.048E+00 s

D. -1.153E+00 s

E. -1.268E+00 s

14. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.7

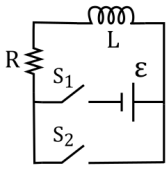
A. -5.757E+00 s

B. -6.333E+00 s

C. -6.966E+00 s

D. -7.663E+00 s

E. -8.429E+00 s

15. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.56

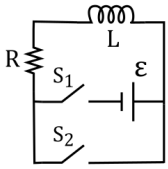
A. -4.939E+00 s

B. -5.433E+00 s

C. -5.976E+00 s

D. -6.574E+00 s

E. -7.231E+00 s

16. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 1.96

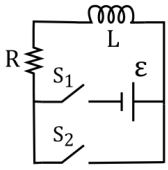
A. -1.700E+00 s

B. -1.870E+00 s

C. -2.057E+00 s

D. -2.262E+00 s

E. -2.489E+00 s

17. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.28

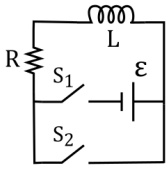
A. -6.429E-01 s

B. -7.072E-01 s

C. -7.779E-01 s

D. -8.557E-01 s

E. -9.412E-01 s

18. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.54

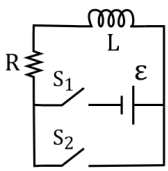
A. -2.540E+00 s

B. -2.794E+00 s

C. -3.073E+00 s

D. -3.381E+00 s

E. -3.719E+00 s

19. 

Suppose switch S_1 in the figure shown was closed and remained closed long enough to acheive steady state. At t=0 S_1 is opened as as S_2 is closed. How long will it take for the energy stored in the inductor to be reduced to 2.23

A. -1.345E+00 s

B. -1.480E+00 s

C. -1.628E+00 s

D. -1.790E+00 s

E. -1.969E+00 s

2.6

1. In an LC circuit, the self-inductance is 0.0134 H and the capacitance is 3.280E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 5.930E-05 C. How long does it take for the capacitor to become completely discharged?

   A. 2.722E-04 s

   B. 2.994E-04 s

   C. 3.293E-04 s

   D. 3.622E-04 s

   E. 3.985E-04 s

2. In an LC circuit, the self-inductance is 0.0424 H and the capacitance is 7.790E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 6.230E-05 C. How long does it take for the capacitor to become completely discharged?

   A. 6.166E-04 s

   B. 6.783E-04 s

   C. 7.461E-04 s

   D. 8.207E-04 s

   E. 9.028E-04 s

3. In an LC circuit, the self-inductance is 0.0126 H and the capacitance is 3.350E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 7.420E-05 C. How long does it take for the capacitor to become completely discharged?

   A. 2.204E-04 s

   B. 2.425E-04 s

   C. 2.667E-04 s

   D. 2.934E-04 s

   E. 3.227E-04 s

4. In an LC circuit, the self-inductance is 0.0216 H and the capacitance is 6.450E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 1.240E-05 C. How long does it take for the capacitor to become completely discharged?

   A. 4.846E-04 s

   B. 5.330E-04 s

   C. 5.863E-04 s

   D. 6.449E-04 s

   E. 7.094E-04 s

5. In an LC circuit, the self-inductance is 0.0735 H and the capacitance is 2.300E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 3.220E-05 C. How long does it take for the capacitor to become completely discharged?

A. 4.411E-04 s

B. 4.852E-04 s

C. 5.338E-04 s

D. 5.871E-04 s

E. 6.458E-04 s

6. In an LC circuit, the self-inductance is 0.025 H and the capacitance is 3.530E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 7.770E-05 C. How long does it take for the capacitor to become completely discharged?

A. 3.856E-04 s

B. 4.242E-04 s

C. 4.666E-04 s

D. 5.133E-04 s

E. 5.646E-04 s

7. In an LC circuit, the self-inductance is 0.0689 H and the capacitance is 2.110E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 7.220E-05 C. How long does it take for the capacitor to become completely discharged?

A. 4.950E-04 s

B. 5.445E-04 s

C. 5.989E-04 s

D. 6.588E-04 s

E. 7.247E-04 s

8. In an LC circuit, the self-inductance is 0.0464 H and the capacitance is 7.350E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 3.280E-05 C. How long does it take for the capacitor to become completely discharged?

A. 8.339E-04 s

B. 9.173E-04 s

C. 1.009E-03 s

D. 1.110E-03 s

E. 1.221E-03 s

9. In an LC circuit, the self-inductance is 0.0237 H and the capacitance is 6.140E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 8.260E-05 C. How long does it take for the capacitor to become completely discharged?

A. 4.093E-04 s

B. 4.502E-04 s

C. 4.952E-04 s

D. 5.447E-04 s

E. 5.992E-04 s

10. In an LC circuit, the self-inductance is 0.0815 H and the capacitance is 6.520E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 8.410E-05 C. How long does it take for the capacitor to become completely discharged?

A. 7.821E-04 s

B. 8.603E-04 s

C. 9.463E-04 s

D. 1.041E-03 s

E. 1.145E-03 s

11. In an LC circuit, the self-inductance is 0.0795 H and the capacitance is 7.930E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 2.420E-05 C. How long does it take for the capacitor to become completely discharged?

A. 9.370E-04 s

B. 1.031E-03 s

C. 1.134E-03 s

D. 1.247E-03 s

E. 1.372E-03 s

12. In an LC circuit, the self-inductance is 0.0116 H and the capacitance is 7.040E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 6.140E-05 C. How long does it take for the capacitor to become completely discharged?

A. 4.489E-04 s

B. 4.938E-04 s

C. 5.432E-04 s

D. 5.975E-04 s

E. 6.572E-04 s

13. In an LC circuit, the self-inductance is 0.0307 H and the capacitance is 5.330E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 1.840E-05 C. How long does it take for the capacitor to become completely discharged?

A. 5.251E-04 s

B. 5.776E-04 s

C. 6.354E-04 s

D. 6.989E-04 s

E. 7.688E-04 s

14. In an LC circuit, the self-inductance is 0.0273 H and the capacitance is 6.440E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 6.620E-05 C. How long does it take for the capacitor to become completely discharged?

A. 5.443E-04 s

B. 5.988E-04 s

C. 6.586E-04 s

D. 7.245E-04 s

E. 7.969E-04 s

15. In an LC circuit, the self-inductance is 0.0156 H and the capacitance is 6.950E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 4.830E-05 C. How long does it take for the capacitor to become completely discharged?

A. 3.886E-04 s

B. 4.275E-04 s

C. 4.702E-04 s

D. 5.172E-04 s

E. 5.689E-04 s

16. In an LC circuit, the self-inductance is 0.035 H and the capacitance is 4.620E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 8.250E-05 C. How long does it take for the capacitor to become completely discharged?

A. 6.316E-04 s

B. 6.948E-04 s

C. 7.643E-04 s

D. 8.407E-04 s

E. 9.248E-04 s

17. In an LC circuit, the self-inductance is 0.0399 H and the capacitance is 8.450E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 6.480E-05 C. How long does it take for the capacitor to become completely discharged?

A. 6.230E-04 s

B. 6.853E-04 s

C. 7.538E-04 s

D. 8.292E-04 s

E. 9.121E-04 s

18. In an LC circuit, the self-inductance is 0.0262 H and the capacitance is 4.540E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 4.700E-05 C. How long does it take for the capacitor to become completely discharged?

A. 4.070E-04 s

B. 4.477E-04 s

C. 4.925E-04 s

D. 5.417E-04 s

E. 5.959E-04 s

19. In an LC circuit, the self-inductance is 0.0776 H and the capacitance is 6.940E-06 F. At t=0 all the energy is stored in the capacitor, which has a charge of 3.400E-05 C. How long does it take for the capacitor to become completely discharged?

A. 1.048E-03 s

B. 1.153E-03 s

C. 1.268E-03 s

D. 1.395E-03 s

E. 1.534E-03 s

3 Attribution

Notes

[1]Example 14.1 from OpenStax University Physics 2: https://cnx.org/contents/eg-XcBxE@9.7:H8S6dNUY@2/141-Mutual-Inductance_1 placed in Public Domain by Guy Vandegrift: https://en.wikiversity.org/wiki/special:permalink/1892308

[2]Example 14.2 OpenStax University Physics 2: https://cnx.org/contents/eg-XcBxE@9.7:9IPDyGBX@2/142-Self-Inductance-and-Induct_1 placed in Public Domain by Guy Vandegrift: https://en.wikiversity.org/wiki/special:permalink/1892308

[3]Example 14.6 from OpenStax University Physics 2: https://cnx.org/contents/eg-XcBxE@9.7:gPV9xl9u@2/143-Energy-in-a-Magnetic-Field_1 placed in Public Domain by Guy Vandegrift: https://en.wikiversity.org/wiki/special:permalink/1892308

[4]Example 14.4 from OpenStax University Physics 2: https://cnx.org/contents/eg-XcBxE@9.7:vsb1s41R@3/144-RL-Circuits_1 placed in Public Domain by Guy Vandegrift: https://en.wikiversity.org/wiki/special:permalink/1892308

[5]Example 14.6 from OpenStax University Physics 2: https://cnx.org/contents/eg-XcBxE@9.7:tIlYnK5w@2/145-Oscillations-in-an-LC-Circ_1 placed in Public Domain by Guy Vandegrift: https://en.wikiversity.org/wiki/special:permalink/1892308