PHYSICS

BOOKS - MTG-WBJEE PHYSICS (HINGLISH)

ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENT

Wb Jee Workout Category 1 Single Option Correct Type

1. The current in self inductance L = 40 mH is to be increased uniformly from 1 amp to 11 amp in 4 milliseconds. The e.m.f. induced in inductor during process is

A. 100 volt

B. 0.4 volt

C. 4.0 volt

D. 440 volt

Answer: A

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2. A magnetic field of $2 \times 10^{-2} T$ acts at right angles to a coil of area $100 cm^2$, with 50 turns. The average e.m.f. induced in the coil is 0.1 V, when it is removed from the field in t sec. The value of t is

A. 10 s

B. 0.1 s

C. 0.01 s

D. 1 s

Answer: B

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3. A 100 millihenray coil carries a current of 1A.

Energy stored in its magnetic field is

A. 0.5 J

B. 1 J

C. 0.05 J

D. 0.1 J

Answer: C

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4. If the number of turns per unit length of a coil of solenoid is doubled, the self-inductance of the solenoid will

A. remain unchanged

B. be halved

C. be doubled

D. become four times

Answer: D

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5. A rectangular coil of 20 turns and area of cross - section 25 sq. cm has a resistance of 100Ω. If a magnetic field which is perpendicular to the plane of coil changes at a rate of 1000 tesla per second, the current in the coil is

A. $1A$

B. 50 A

C. 0.5 A

D. $5A$

Answer: C

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6. The total charge, induced in a onducting loop when it is moved in magnetic field depend on

A. the rate of change of magnetic flux

B. initial magnetic flux only

C. the total change in magnetic flux

D. final magnetic flux only.

Answer: C

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7. In an A.C. circuit, the current flowing is I = 5 sin $(100t - \pi/2)$ ampere and the potential

difference is V = 200 sin (100t) volts. The power consumption is equal to

A. 20 W

B. 0 W

C. 1000 W

D. 40 W

Answer: B

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8. Two coils have a mutual inductance 0.005 H. The current changes in the first coil according to equation $I = I_0 \sin \omega t$, where $I_0 = 10A$ and $\omega = 100\pi$ rad/s. The maximum value of e.m.f. in the second coil is

A. π

B. 5π

C. 2π

D. 4π

Answer: B

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9. A step-up transformer operates on a 230 V line and supplies a load of ampere. The ratio of the primary and secondary windings is 1:25. The current in the primary is

A. 15 A

B. 50 A

C. 25 A

D. 12.5 A

Answer: B

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10. For a series LCR circuit the power loss at resonance is

A. $\frac{V^2}{\left[\omega L - \frac{1}{\omega C}\right]}$

B. $I^2 L\omega$

C. $I^2 R$

D. $\frac{V^2}{C\omega}$

Answer: C

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11. The magnetic flux through a circuit of resistance R changes by an amount $\Delta\phi$ in a time Δt. Then the total quantity of electric charge Q that passes any point in the circuit during the time Δt is represented by

A. $Q = \frac{1}{R} \cdot \frac{\Delta\phi}{\Delta t}$

B. $Q = \frac{\Delta\phi}{R}$

C. $Q = \frac{\Delta\phi}{\Delta t}$

D. $Q = R.\ \frac{\Delta\phi}{\Delta t}$

Answer: B

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12. A transformer is used to light a 100 W and 110 V lamp from a 220 V mains. If the main current is 0.5 amp, the efficiency of the transformer is approximately

A. $50\ \%$

B. $90\ \%$

C. $10\ \%$

D. $30\ \%$

Answer: B

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13. What is the value of inductance L for which the current is maximum in a series LCR circuit with $C = 10\mu F$ and $\omega = 1000s^{-1}$?

A. 1 mH

B. cannot be calculated unless R is known

C. 10 mH

D. 100 mH

Answer: D

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14. A straight conductor of length 4 metre moves at a speed of 10 m/s when the conductor makes an angle of 30° with the

direction of magnetic field of induction 0.1 weber per metre^2. Then the induced e.m.f is

A. 1 volt

B. 2 volt

C. 4 volt

D. 8 volt

Answer: A

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15. The mutual inductance of a pair of coils if a current of 3 ampere in one coil causes the flux in the second coil of 2000 turns to change by 6×10^{-4} weber per turn of the secondary coil is

A. 6×10^{-4} henry

B. 2×10^{-4} henry

C. 0.4 henry

D. 4 henry

Answer: C

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16. An ideally efficient transformer has a primary power input of 10 kW. The secondary current when the transformer is on load is 25 ampere. If the primary to secondary turns ratio is 8:1, then the potential difference applied to the primary coil is

A. $\frac{10^4 \times 8^2}{25} V$

B. $\frac{10^4 \times 8}{25} V$

C. $\frac{10^4}{25 \times 8^2} V$

D. $\frac{10^4}{25 \times 8} V$

Answer: B

View Text Solution

17. A 120V, 60 HzA.C. is connected across a non - inductive resistace of 400Ω an un-known capacitor joined in series. The voltage across resistance is 66.3 V. The voltage drop across capacitor is

A. 120 V

B. 66.3 V

C. 53.7 V

D. 100 V

Answer: D

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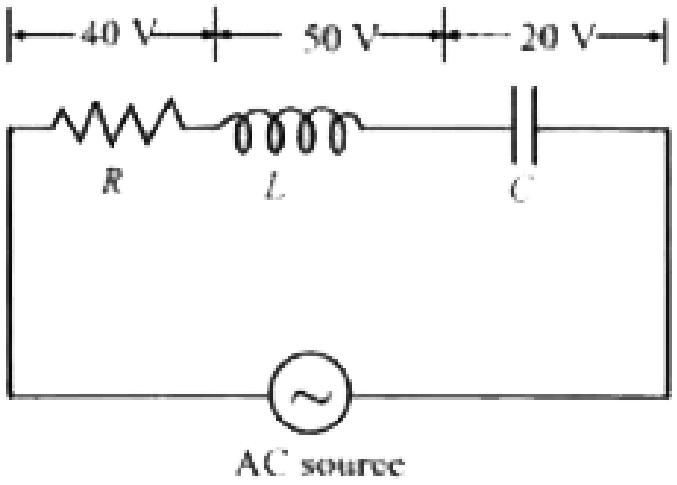
18. In series LCR circuit, the voltages across R, L and C shown in figure. The voltage of applied

source is



A. 110 volt

B. 10 volt

C. 50 volt

D. 70 volt

Answer: C

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19. Using A.C. voltmeter, the potential difference in the electrical line in a house is read to be 234 volts. If the line frequency is known to be 50 cycles per second, the equation for the line voltage is

A. $V = 165 \sin(100\pi t)$

B. $V = 331 \sin(100\pi t)$

C. $V = 234 \sin(100\pi t)$

D. $V = 440 \sin(100 - \pi t)$

Answer: B

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20. An aircraft with a wingspan of 40 m flies with a speed of $1080 kmh^{-1}$ in the eastward direction at a constant altitude in the northen hemisphere, where the vertical component of earth's magnetic field is $1.75 \times 10^{-5} T$. Then

the e.m.f. that develops between the tips of the wings is

A. 0.5 V

B. 0.34 V

C. 0.21 V

D. 2.1 V

Answer: C

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21. An A.C. of frequency f is flowing in a circuit containing only a choke coil of inductance L. If V_0 and I_0 represent the peak values of the voltage and the current respectively, then the average power given by the source to the choke is equal to

A. $I_0 V_0 / 2$

B. $I_0^2 V_0^2 / 2$

C. Zero

D. $\frac{V_0 . (2\pi f L)}{2}$

Answer: C

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22. A resistance of 300Ω and inductance of $1/\pi$ henry are connected in series to an alternating voltage of 20 V and 200 Hz frequency. The phase angle between the voltage and current is

A. $\tan^{-1}\left(\frac{3}{4}\right)$

B. $\tan^{-1}\left(\frac{3}{2}\right)$

C. $\tan^{-1}\left(\frac{4}{3}\right)$

D. $\tan^{-1}\left(\frac{2}{3}\right)$

Answer: C

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23. A transformer has turn ratio 100 : 1. If the secondary coil has 4 amp current, then current in primary coil is

A. 4A

B. 0.04 A

C. 0.4 A

D. 400 A

Answer: B

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24. A coil having an area A_0 is placed in a magnetic field which changes from B_0 to $4B_0$ in a time interval t. The e.m.f. induced in the coil will be

A. $\frac{3B_0}{A_0 t}$

B. $\frac{4A_0 B_0}{t}$

C. $\frac{4B_0}{A_0 t}$

D. $\frac{3A_0 B_0}{t}$

Answer: D

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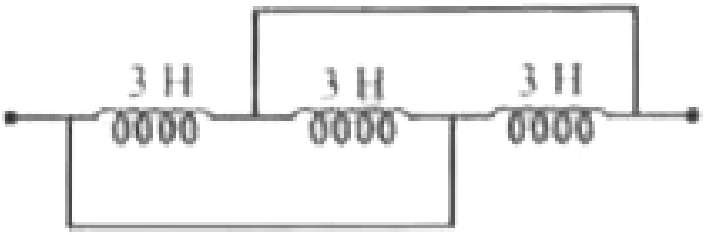
25. Pure inductances of 3.0 H are connected as shown in figure. The equivalent inductance of

the circuit is



A. 9H

B. 3H

C. 1H

D. 1/3 H

Answer: C

View Text Solution

26. A copper disc of radius 0.1 m is rotated about its centre, with 10 revolutions per second, in a uniform magnetic field of 0.1 tesla with its plane perpendicular to the field. The e.m.f. induced across the radius of the disc is

A. $\pi \times 10^{-1}$ volt

B. $\pi \times 10^{-2}$ volt

C. $2\pi \times 10^{-1}$ volt

D. $2\pi \times 10^{-2}$ volt

Answer: B

View Text Solution

27. In circular coil, when number of turns is doubled and resistance becomes 1/4th of initial value, the inductance becomes

A. 8 times

B. 2 times

C. 4 times

D. No change

Answer: C

View Text Solution

28. A metal conductor of length 1 m rotates vertically about one of its ends at angular velocity 5 radian per second. If the horizontal component of earth's magnetic field is $0.2 \times 10^{-4} T$, then the e.m.f. developed between the two ends of the conductor is

A. $5\mu V$

B. $50mV$

C. $5mV$

D. $50\mu V$

Answer: D

View Text Solution

29. Lenz's law of electromagnetic induction corresponds to the

A. law of conservation of charge

B. law of conservation of momentum

C. law of conservation of momentum

D. law of conservation of angular momentum

Answer: B

View Text Solution

30. The magnetic flux linked with a coil satisfies the relation $\phi = 4t^2 + 6t + 9$ Wb, where t is the time in second. The em.f. induced in the coil at t = 2 second is

A. 22 V

B. 18 V

C. 16 V

D. 40 V

Answer: A

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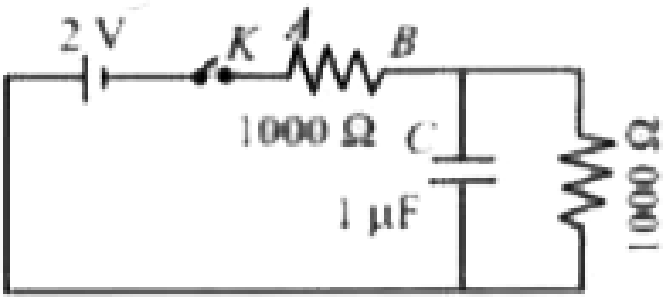
Wb Jee Workout Category 2 Single Option Correct Type

1. When the key K is pressed at time t = 0, then which of the following statement about the current I in the resistor AB of the given circuit is true ?



A. I oscillates between 1 mA and 2 mA

B. at t = 0, I = 2 m A and with time it goes to 1 mA

C. I = 1 mA at all t

D. I = 2 mA at all t.

Answer: B

View Text Solution

2. The primary winding of a transformer has 500 turns whereas its secondary has 5000 turns. The primary is connected to an A.C. supply 20 V, 50 Hz. The secondary will have an output of

A. 2V, 50 Hz

B. 2 v, 5 Hz

C. 200 V, 50 Hz

D. 200 V, 500 Hz

Answer: C

View Text Solution

3. In a circuit L, C and R are connected in series with an alternating voltage source of frequency f. The current leads the voltage by 45°. The value of C is

A. $\frac{1}{\pi f(2\pi fL - R)}$

B. $\frac{1}{2\pi(2\pi fL - R)}$

C. $\frac{1}{\pi f(2\pi fL + R)}$

D. $\frac{1}{2\pi(2\pi fL + R)}$

Answer: D

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4. A transistor - oscillator using a resonant circuit with an inductor L (of negligible resistance) and a capacitor C in series produce

oscillations of frequency f. If L is doubled and C is changed to 4C, the frequency will be

A. f/2

B. f/4

C. 8f

D. $f / 2\sqrt{2}$

Answer: D

View Text Solution

5. The primary and secondary coils of a transformer have 50 and 1500 turns respectively. If the magnetic flux ϕ, linked with the primary coil is given by $\phi = \phi_0 + 4t$, where ϕ is in webers, t is time in seconds and ϕ_0 is a constant, the output voltage across the secondary coil is

A. 120 volts

B. 220 volts

C. 30 volts

D. 90 volts

Answer: A

View Text Solution

6. An air cored coil has a self-inductance of 0.1 H. A soft-iron core of relative permeability 100 is introduced and the number of turns is reduced to $1/10^{th}$. The value of self-inductance now is :

A. 0.1 H

B. 1 mH

C. 1 H

D. 10 mH

Answer: C

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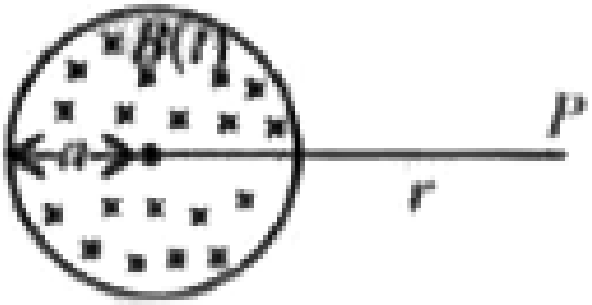
7. A uniform but time varying magnetic field B(t) exists in a circular region of radius a and is directed into the plane of paper as shown. The magnitude of the induced electric field at

point P at a distance r from the centre of the circular region.



A. is zero

B. decreases as $\frac{1}{r}$

C. increases as r

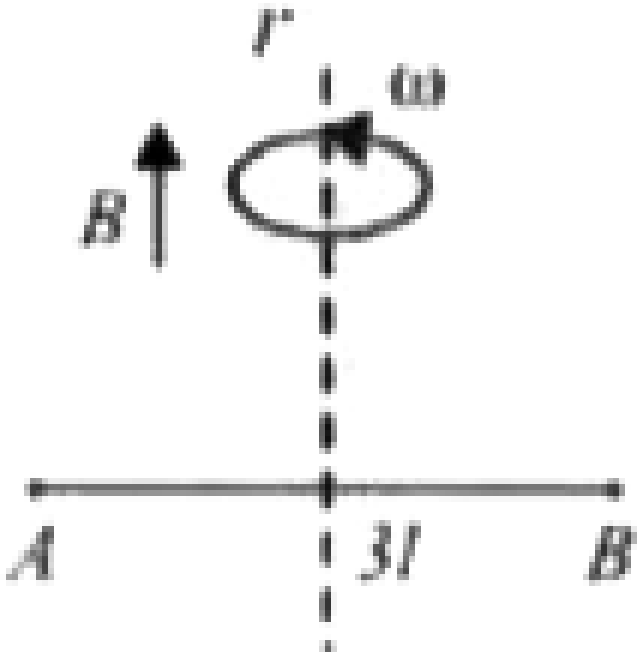
D. decreases as $\frac{1}{r^2}$

Answer: B

View Text Solution

8. A conducting rod of length 2l is rotating with constant angular speed ω about is perpendicular bisector. A uniform magnetic field $\overrightarrow{B}$ exists parallel to the axis of rotation. The e.m.f. induced between two ends of the

rod is



A. $\frac{1}{2}B\omega l^2$

B. $\frac{1}{8}B\omega l^2$

C. Zero

D. $B\omega l^2$

Answer: C

View Text Solution

9. A solenoid of length l metre has self inductance L henry. If number of turns are doubled, its self inductance

A. Becomes 2 L henry

B. Becomes 4 L henry

C. Remains same

D. Becomes $\frac{L}{\sqrt{2}}$ henry

Answer: B

View Text Solution

10. An average induced e.m.f. of 1 V appears in coil when the current in it is changed from 10 A in one direction to 10 A in opposite direction in 0.5 sec. Self inductance of the coil is

A. 50 mH

B. 25 mH

C. 100 mH

D. 75 mH

Answer: B

View Text Solution

11. A coil having n turns and resistance $R\Omega$ is connected with a galvanometer of resistance $4R\Omega$. This combination is moved in time t sec from a magnetic field W_1 weber to W_2 weber. The induced current in the circuit is

A. $-\frac{(W_2 - W_1)}{5Rnt}$

B. $-\frac{n(W_2-W_1)}{5Rt}$

C. $-\frac{(W_2-W_1)}{Rnt}$

D. $-\frac{n(W_2-W_1)}{Rt}$

Answer: B

View Text Solution

12. A capacitor of $2.5\mu F$ is charged through a resistor of $4M\Omega$. In how much time will potential drop across capacitor will become 3 times that of resistor (ln 2 0.693)

A. 13.86 s

B. 6.93 s

C. 1.386 s

D. 69.3 s

Answer: A

View Text Solution

13. An alternating current of rms value 10 A is passed through a 12Ω resistor. The maximum potential difference across the resistor is

A. 20 V

B. 90 V

C. 169.68 V

D. none of these

Answer: C

View Text Solution

14. The current through a coil self inductance L = 2 mH is given by $I = t^2 e^{-1}$ at time t. How long it will take to make the e.m.f. zero ?

A. 1 s

B. 2 s

C. 3 s

D. 4 s

Answer: B

View Text Solution

15. The magnetic flux across a loop of resistance 10Ω is given by $\phi = 5t^2 - 4t + 1$

weber. How much current is induced in the loop after 0.2 sec ?

A. 0.4 A

B. 0.2 A

C. 0.4 A

D. 0.02 A

Answer: B

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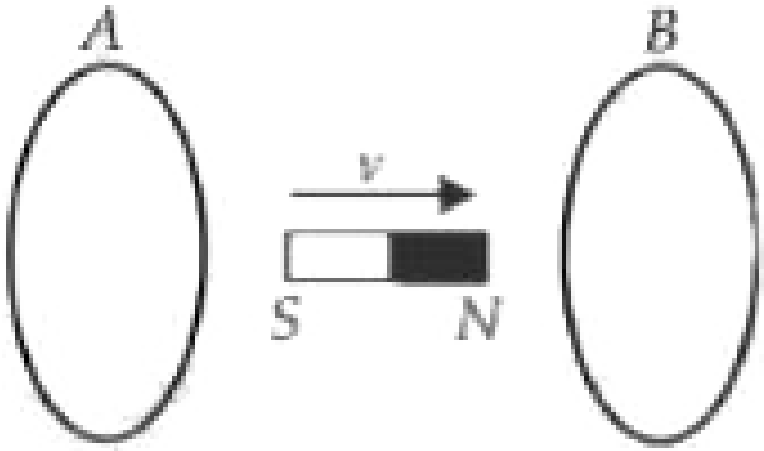
Wb Jee Workout Category 3 One Or More Than One Option

1. A bar magnet is moved between two parallel circular loop A and B with a constant velocity v as shown in figure.



A. The current in each loop flows in the same direction

B. The current in each loop flows in opposite direction

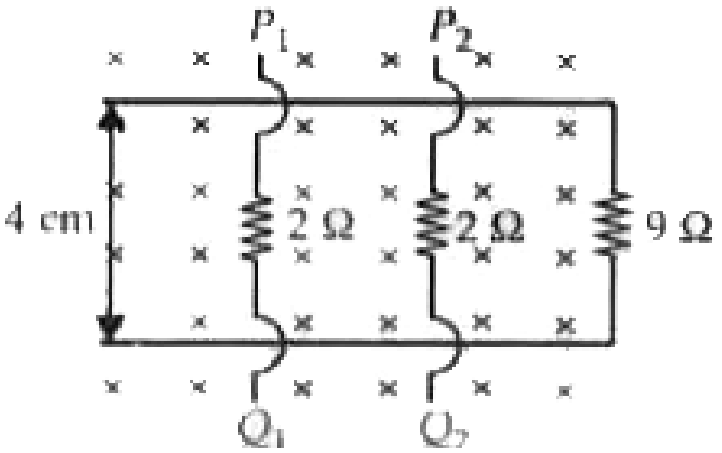
C. The loops will repel each other

D. The loops will attract each other

Answer: A::C

View Text Solution

2. In the given figure, the wires P_1Q_1 and P_2Q_2 are made to slide on the rails with same speed of 5 cm s^{-1}. In this region, a magnetic field of 1 T exists. The electric current in the 9Ω resistance is



A. zero if both wires slide toward left

B. zero if both wires slide in opposite direction

C. 0.2 mA if both wires move toward left

D. 0.2 mA if both wires in opposite directions.

Answer: B::C

View Text Solution

3. A conducting rod of length l is higed at point O. It is free to rotate in a vertical plane. There exists a uniform magnetic field $\overrightarrow{B}$ in horizontal direction. The rod is released from the position shown in figure. Potential difference between the two ends of the rod is proportional to

A. $l^{3/2}$

B. l^2

C. $\sin\theta$

D. $(\sin\theta)^{1/2}$

Answer: B::D

View Text Solution

4. A conducting wire of length l and mass m can slide without friction on two parallel rails and is connected to capacitance C. The whole system lies in a magnetic field B and a constant force F is applied to the rod. Then

A. the rod moves with constant velocity

B. the rod moves with an acceleration of

$$\frac{F}{m + B^2 l^2 C}$$

C. there is constant charge on the capacitor.

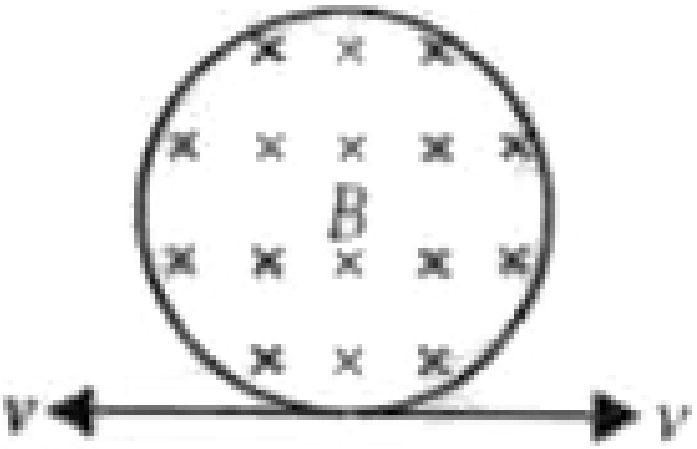
D. charge on the capacitor increases with time

Answer: B::D

View Text Solution

5. A circular conducting loop of radius r_0 and having resistance per unit length λ as shown in the figure is placed in a magnetic field B which is constant in space and time. The ends of the loop are crossed and pulled in opposite directions with a velocity v such that the loop always remains circular and the radius of the

loop goes on decreasing, then



A. radius of the loop changes with r as

$$r = r_0 - \frac{vt}{\pi}$$

B. emf induced in the loop as a function of time is $\varepsilon = 2Bv\left[r_0 - \frac{vt}{\pi}\right]$

C. current induced in the loop is $I = \frac{Bv}{2\pi\lambda}$

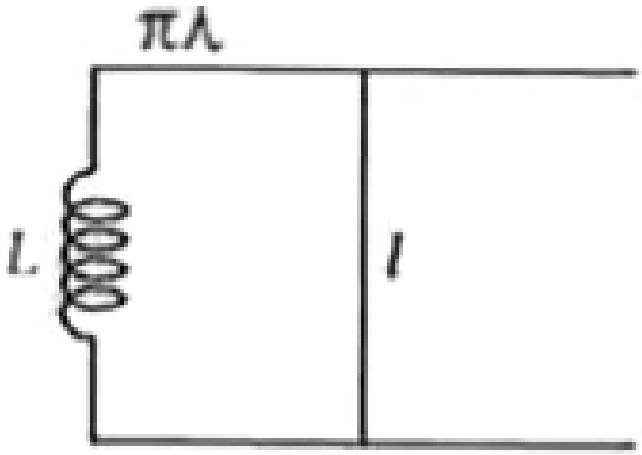
D. current induced in the loop is $I = \frac{Bv}{\pi\lambda}$.

Answer: A::B::D

View Text Solution

6. Two parallel resistanceless rails are connected by an inductor or inductance L at one end as shown in figure. A magnetic field B exists in the space which is perpendicular to the plane of the rails. Now a conductor of length l and mass m is placed transverse on

the rail and given an impulse J towards the rightward direction. Then select the corrent option(s).



A. velocity of the conductor is half of the initial velocity after a displacement of the conductor $d = \sqrt{\frac{3J^2L}{4B^2l^2m}}$

B. velocity of the conductor is half of the initial velocity after a displacement of the conductor $d = \sqrt{\frac{3J^2L}{B^2l^2m}}$

C. current flowing through the inductor at the instant when velocity of the conductor is half of the initial velocity is $i = \sqrt{\frac{3J^2}{4Lm}}$

D. current flowing through the inductor at the instant when velocity of the

conductor is half of the initial velocity is

$$i = \sqrt{\frac{3J^2}{mL}}$$

Answer: A::C

View Text Solution

7. Two different coils have self-inductance $L_1 = 8mH, L_2 = 2mH$. The current in one coil is increased at a constant rate. The current in the second coil is also increased at the same rate. At a certain instant of time, the

power given to the two coils is the same. At that time the current, the induced voltage and the energy stored in the first coil are i_1, V_1 and W_1 respectively. Corresponding values for the second coil at the same instant are i_2, V_2 and W_2 respectively. Then

A. $\frac{i_1}{i_2} = \frac{1}{4}$

B. $\frac{i_1}{i_2} = 48$

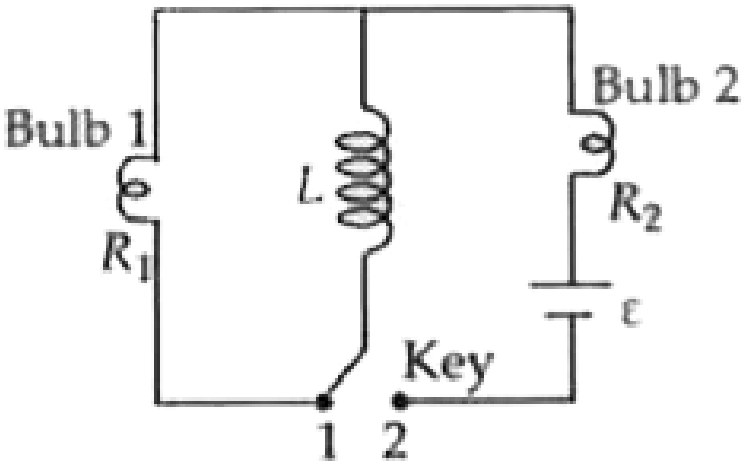
C. $\frac{W_2}{W_1} = 4$

D. $\frac{V_2}{V_1} = \frac{1}{4}$

Answer: A::C::D

View Text Solution

8. Key is the position 2 for time t. Thereafter, it is in position 1. Resistance of the bulb and inductance of inductor are marked in the figure choose the figure choose the correct alternative.



A. Bulb 2 dies as soon as key is wsitched into position 1.

B. Time in which brigthness of bulb 1 become half its maximum brightness does not depend on t.

C. If $t = \infty$, total heat produced in bulb 1 is $\frac{L\varepsilon^2}{2R_2^2}$

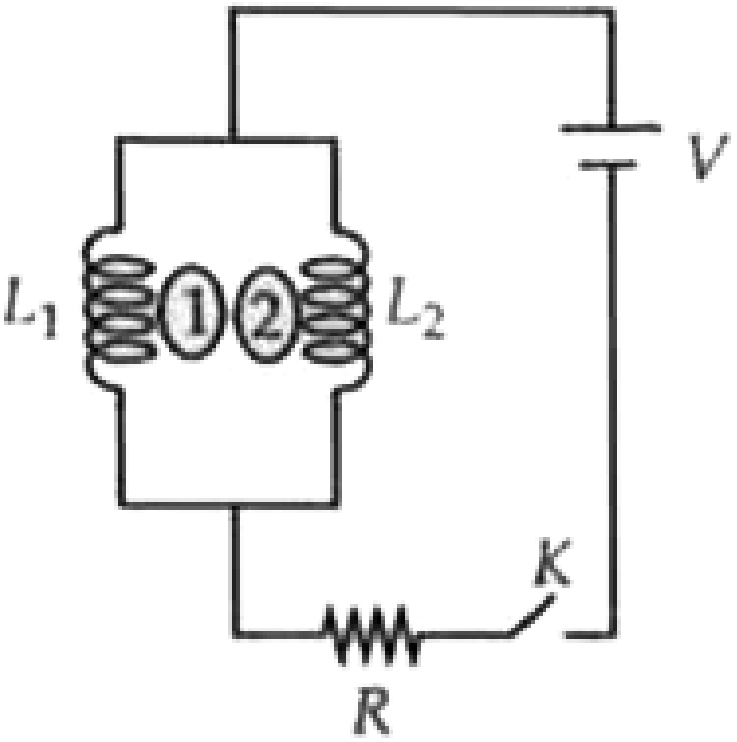
D. Ratio of maximum power consumption of bulbs depends on time

Answer: A::B::C

View Text Solution

9. In the figure shown in key is switched on a t = 0. Let I_1 and I_2 be the current through inductors having self inductances L_1 and L_2 at any time t respectively. The magnetic energy stored in the inductors 1 and 2 be U_1 and U_2.

Then U_1 / U_2 at any instant of time is



A. $\frac{L_2}{L_1}$

B. $\frac{L_1}{L_2}$

C. $\frac{I_1}{I_2}$

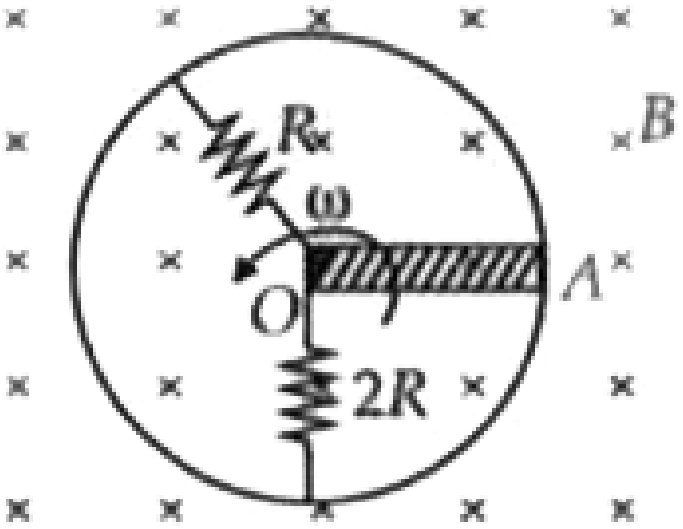
D. $\frac{I_2}{I_1}$

Answer: A::C

View Text Solution

10. A rod OA of length l is rotating (about end O) over a conducting ring in crossed magnetic field B with constant angular velocity ω as

shown in figure.



A. Current flowing through the rod is

$$\frac{3B\omega l^2}{4R}$$

B. Magnetic force acting on the rod is

$$\frac{3B^2\omega l^3}{4R}$$

C. Torque due to magnetic force acting on the rod is $\frac{3B^2\omega l^4}{8R}$

D. Magnitude of external force that acts perpendicularly at the end of the rod of maintain the constant angular speed is $\frac{3B^2\omega l^3}{8R}$

Answer: A::B::C::D

View Text Solution

Wb Jee Previous Years Questions

1. An alternating current in a circuit is given by $I = 20\sin(100\pi t + 0.05\pi)$ A. The r.m.s value and the frequency of current respectively are

A. 10 A and 100 Hz

B. 10 A and 50 Hz

C. $10\sqrt{2}$ and 50 Hz

D. $10\sqrt{2}A$ and 100 Hz

Answer: C

View Text Solution

2. A very small circular loop of radius a is initially (at t = 0) coplanar and concentric with a much larger fixed circular loop of radius b. A constant current I flows in the larger loop. The smaller loop is rotated with a constant angular speed ω about the common diameter. The emf induced in the smaller loop as a function of time t is

A. $\frac{\pi a^2 \mu_0 I}{2b} \omega \cos(\omega t)$

B. $\frac{\pi a^2 \mu_0 I}{2b}\omega \sin\left(\omega^2 t^2\right)$

C. $\frac{\pi a^2 \mu_0 I}{2b}\omega \sin(\omega t)$

D. $\frac{\pi a^2 \mu_0 I}{2b}\omega \sin^2(\omega t)$

Answer: C

View Text Solution

3. A straight conductor 0.1 m long moves in a uniform magnetic field 0.1 T. The velocity of the conductor is 15 m/s and is directed

perpendicular to the field. The e.m.f. induced between the two ends of the conductor is

A. 0.10 V

B. 0.15 V

C. 1.50 V

D. 15.00 V

Answer: B

View Text Solution

4. The coils of self inductances 6 mH and 8 mH are connected in series and are adjusted for highest co-efficient of coupling. Equivalent self inductance L for the assembly is approximately

A. 50 mH

B. 36 mH

C. 28 mH

D. 18 mH

Answer: C

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5. A $1\mu F$ capacitor C is connected to a battery of 10 V through a resistance $1M\Omega$. The voltage across C after 1 sec is approximately

A. 5.6 V

B. 7.8 V

C. 6.3 V

D. 10 V

Answer: C

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6. When the frequency of the AC voltage applied to a series LCR circuit is gradually increased from a low value, the impedance of the circuit

A. monotonically increases

B. first increases and then decreases

C. first decreases and then increases

D. monotonically decreases

Answer: C

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7. An alternating current is flowing through a series LCR circuit. It is found that the current reaches a value of 1 mA at both 200 Hz and 800 Hz frequency. What is the resonance frequency of the circuit ?

A. 600 Hz

B. 300 Hz

C. 500 Hz

D. 400 Hz

Answer: D

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8. When a 60 mH inductor and a resistor are connected in series with an AC voltage source, the voltage leads the current by 60°. If the inductor is replaced by a $0.5\mu F$ capacitor, the

voltage lags behind the current by 30°. What is the frequency of the AC supply ?

A. $\frac{1}{2\pi} \times 10^4 Hz$

B. $\frac{1}{\pi} \times 10^4 Hz$

C. $\frac{3}{2\pi} \times 10^4 Hz$

D. $\frac{1}{2\pi} \times 10^8 Hz$

Answer: A

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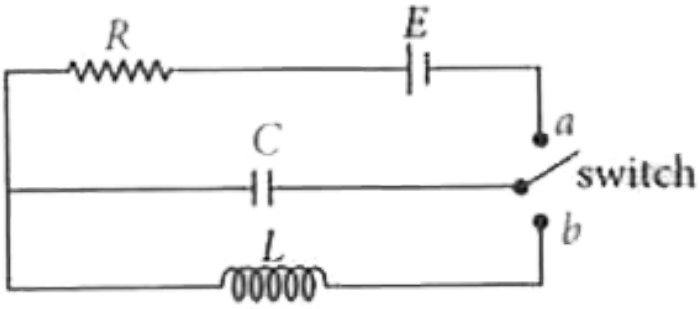
9. In the circuit shown below, the switch is kept in position 'a' for a long time and is then thrown to position 'b'. The amplitude of the resulting oscillating current is given by



A. $E\sqrt{L/C}$

B. E/R

C. infinity

D. $E\sqrt{C/L}$

Answer: D

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10. A current $I = I_0 e^{-\lambda l}$ is flowing in a circuit consisting of a parallel combination of resistance R and capacitance C. The total charge over the entire pulse period is

A. $\frac{I_0}{\lambda}$

B. $\frac{2I_0}{\lambda}$

C. $I_0\lambda$

D. $e^{I_0\lambda}$

Answer: A

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11. As shown in the figure a rectangular loop of a conducting wire is moving away a constant velocity 'v' in a perpendicular direction from a very long straight conductor carrying a steady

current 'I'. When the breadth of the rectangular loop is very small compared to its distance from the straight conductor, how does the e.m.f. 'E' induced in the loop vary with time 't' ?

A. $E \propto \frac{1}{t^2}$

B. $E \propto \frac{1}{t}$

C. $E \propto \ln(t)$

D. $E \propto \frac{1}{t^3}$

Answer: A

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12. A parallel plate capacitor in series with a resistance of 100Ω, an inductor of 20 mH and and AC voltage source of variable frequency shows resonance at a frequency of $\frac{1250}{\pi} Hz$. If this capacitor is charged by a DC voltage source to a voltage 25 V, what amount of charge will be stored in each plate of the capacitor ?

A. $0.2\mu C$

B. `2 mC

C. 0.2 mC

D. 0.2 C

Answer: C

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13. A conducting loop in the form of a circule is placed in a uniform magnetic field with its place perpendicular to the direction of the field. An e.m.f. will be induced in the loop if

A. it is translated parallel to itself.

B. it is rotated about one of its diameters.

C. it is rotated about its own axis which is parallel to the field.

D. the loop is deformed from the original shape.

Answer: B::D

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14. A metallic loop is placed in a uniform magnetic field $\overrightarrow{B}$ with the plane of the loop perpendicular to $\overrightarrow{B}$. Under which condition(s) given below an emf will be induced in the loop ?

"If the loop is ....."

A. moved along the direction of $\overrightarrow{B}$.

B. squeezed to a smaller area

C. rotated about its axis

D. rotated about one of its diameters.

Answer: B::D

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