TEST

Self Assessment Test (Unit-8)

50 Questions

40 min

Topics

SAT Unit (Electromagnetism & Electromagnetic Induction)

Start Test

USAMASOHAIL

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39 : 58

Q 1/50 40 min Hint

Q : In a circuit with a coil of resistance 2 ohms, the magnetic flux changes from 2.0 Wb to 10.0 Wb in 0.2 second. The charge that flows in the coil during this time is

A 5.0 coulomb

B 1.0 coulomb

C 4.0 coulomb

D 0.8 coulomb

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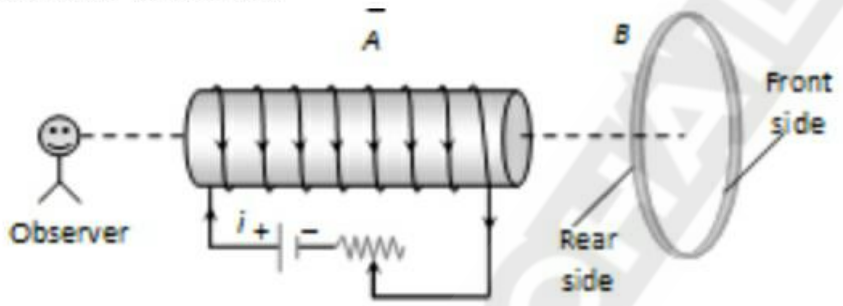
39 : 56

Q 2/50 40 min Hint

Q : An aluminium ring *B* faces an electromagnet *A*. The current *I* through *A* can be altered



A Whether I increases or decreases, B will not experience any force

B If I increases, A will attract B

C If I decrease, A will repel B

D If I increases, A will repel B

1 2 3 4 5 6 7

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39 : 53

Q 3/50 40 min Hint

Q : The ratio of secondary to the primary turns in a transformer is 3 : 2. If the power output be *P*, then the input power neglecting all loses must be equal to

A 5 P

B 1.5 P

C P

D 2/5 P

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39 : 51

Q 4/50 40 min Hint

Q : The efficiency of transformer is very high because

A There is no moving part in a transformer

B It produces very high voltage

C It produces very low voltage

D None of the above

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39 : 50

Q 5/50 40 min Hint

Q : A step-down transformer is used on a 1000 V line to deliver 20 A at 120 V at the secondary coil. If the efficiency of the transformer is 80% the current drawn from the line is .

A 3 A

B 0.3 A

C 30 A

D 2.4 A

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39 : 48

Q 6/50 40 min Hint

Q : The force acting on a charge q moving with a velocity **v** in a magnetic field of induction **B** is given by:

A $q/(\vec{v} \times \vec{B})$

B $(\vec{v} \times \vec{B})/q$

C $q(\vec{V} \times \vec{B})$

D $q(\vec{V} . \vec{B})$

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39 : 47

Q 7/50 40 min Hint

Q : A 2 MeV proton is moving perpendicular to a uniform magnetic field of 2.5 T. The force on the proton is:

A 2.5×10^{-10} N

B 8×10^{-11} N

C 2.5×10^{-11} N

D 8×10^{-12} N

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39 : 45

Q 8/50 40 min Hint

Q : A long straight current carrying conductor has current direction from bottom to top when held vertically. What will be the direction of magnetic field lines when observed from below the conductor?

A Clockwise

B Vertically upward

C Anticlockwise

D Vertically downward

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39 : 44

Q 9/50 40 min Hint

Q : Two long straight wires are set parallel to each other at separation r and each carries a current I in the same direction. The strength of the magnetic field at any point midway between the two wires is

A $\frac{\mu_o I}{r}$

B $\frac{2\mu_o I}{r}$

C $\frac{2\mu_o I}{2r}$

D zero

5 6 7 8 9 10

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39 : 42

Q 10/50 40 min Hint

Q : Three infinite straight wires A, B and C carry currents as shown in fig, the resultant force on wire B is directed

A Towards A

B Towards C

C Zero

Perpendicular to the plane of the

5 6 7 8 9 10

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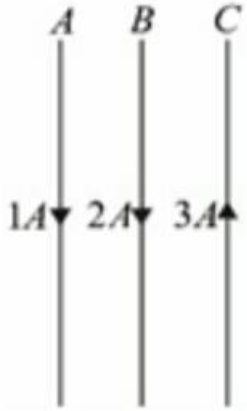
39 : 41

Q : Three infinite straight wires A, B and C carry currents as shown in fig, the resultant force on wire B is directed



A Towards A

B Towards C

C Zero

D Perpendicular to the plane of the page

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39 : 39

Q 11/50 40 min Hint

Q : Magnetic lines of force

A Always intersect

B Are always closed

C Tend to crowd far away from the poles of a magnet

D Do not pass through vacuum

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39 : 38

Q 12/50 40 min Hint

Q : An electron of mass m is accelerated through a potential difference of V and then it enters a magnetic field of induction B normal to the lines. Then the radius of the circular path is

A $\sqrt{\frac{2eV}{m}}$

B $\sqrt{\frac{2Vm}{eB^2}}$

C $\sqrt{\frac{2Vm}{eB}}$

D $\sqrt{\frac{2Vm}{e^2B}}$

8 9 10 11 12 13

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39 : 36

Q 13/50 40 min Hint

Q : The magnitude of the force on a moving charge is maximum when angle between the velocity of the charge and the magnetic field is

A 0°

B 180°

C 90°

D 45°

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39 : 34

Q 14/50 40 min Hint

Q :

When the current flowing through the wire is stopped, the magnetic field around the wire becomes.

A Doubles

B Half

C Remains same

D Zero

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39 : 33

Q 15/50 40 min Hint

Q :

If a charge particle enters a uniform magnetic field there is a change in its

A Kinetic energy

B Magnitude of velocity

C Direction of velocity

D All of these

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39 : 32

Q 16/50 40 min Hint

Q : PQRS is a square loop made of uniform conducting wire. If the current enters the loop at P and leaves at S, then the magnetic field will be:

A Maximum at the centre of the loop

B Zero at the centre of loop

C Zero at all points inside the loop

Zero at all points outside of the

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39 : 31

Q : PQRS is a square loop made of uniform conducting wire. If the current enters the loop at P and leaves at S, then the magnetic field will be:

A Maximum at the centre of the loop

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C Zero at all points inside the loop

D Zero at all points outside of the loop

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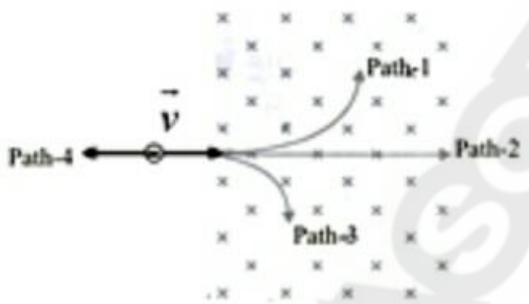
39 : 30

Q 17/50 40 min Hint

Q : The fig shows a uniform magnetic field **B** directed into the plane of paper. A particle with negative charge moves in the plane, which of four paths 1, 2, 3 or 4 does the particle follow



A Path 1

B Path 2

C Path 3

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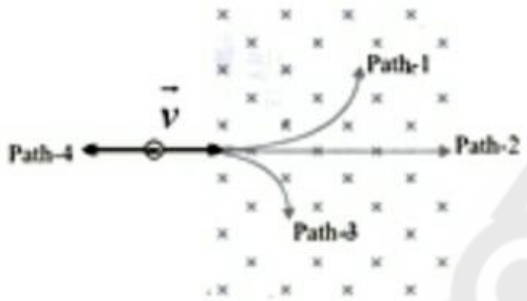
39 : 29

Q : The fig shows a uniform magnetic field **B** directed into the plane of paper. A particle with negative charge moves in the plane, which of four paths 1, 2, 3 or 4 does the particle follow



A Path 1

B Path 2

C Path 3

D Path 4

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39 : 27

Q 18/50 40 min Hint

Q : Which of the following Statements is false?

A. A stationary charge produces a constant electric field

B. A moving charge with uniform speed produces a constant magnetic field.

C. An accelerated charge produces combination of varying electric and magnetic field

D. A conductor carrying steady current has no electric field in it

14 15 16 17 18 19

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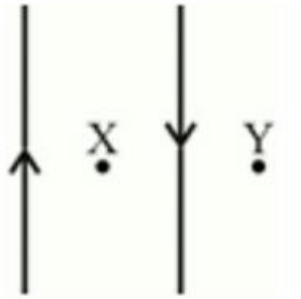
39 : 24

Q : Two current carrying conductors are placed parallel as shown in figure. Which point will experience the strong magnetic field?



A X

B Y

C Both experience same magnetic field

D None of these

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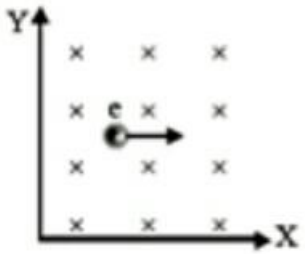
39 : 22

Q 20/50 40 min Hint

Q : In the given figure the electron enters into the magnetic field. It deflects in.....direction



A +ve X direction

B + ve Y direction

C −ve X direction

D − ve Y direction

4 15 16 17 18 19 20

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39 : 20

Q 21/50 40 min Hint

Q : In the formula F = q (v× B)

A F must be perpendicular to v but not necessarily to B

B F must be perpendicular to both v and B

C v must be perpendicular to B but not necessarily to F

D All three vectors must be mutually perpendicular

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39 : 19

Q 22/50 40 min Hint

Q : The velocity of a particle of charge $+4.0 \times 10^{-9}$ C and mass 2×10^{-4} kg is perpendicular to a 0.1-tesla magnetic field. If the particle's speed is 3×10^{4} m/s, what is the acceleration of this particle due to the magnetic force?

A $0.0006\ m/s^2$

B $0.06\ m/s^2$

C $0.006\ m/s^2$

D $0.6\ m/s^2$

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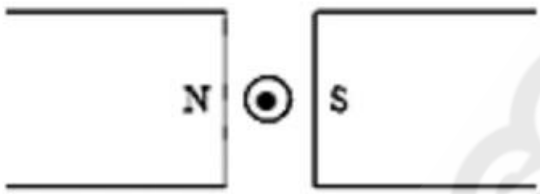
39 : 18

Q 23/50 40 min Hint

Q : The diagram shows a straight wire carrying a flow of electrons into the page. The wire is between the poles of a permanent magnet. The direction of the magnetic force exerted on the wire is



A ↓

B ←

C →

D ↑

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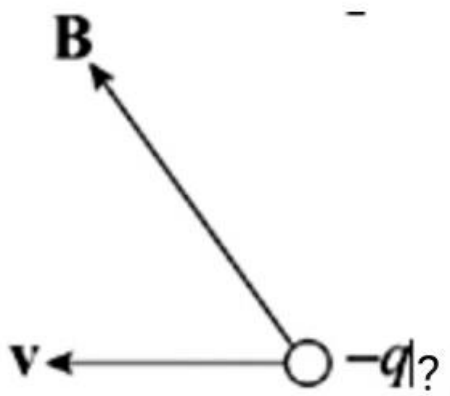
39 : 14

Q 24/50 40 min Hint

Q : In the figure below, what is the direction of the magnetic force F_B



A To the right

B Upward, in the plane of the page

C Downward, in the plane of the page

D Out of the plane of the page

20 21 22 23 24 25 2

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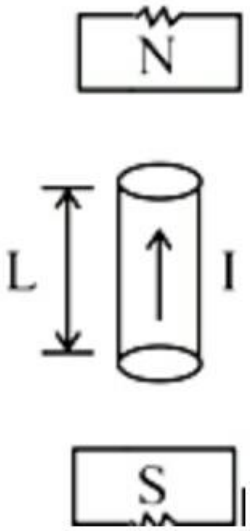
39 : 12

Q : A wire carrying current (I) is place in a region of magnetic field as shown in figure direction of force is



A into paper

B towards right

C out of paper

D no force is acting

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39 : 11

Q 26/50 40 min Hint

Q : Which of the following cannot be deflected by a magnetic field?

A Alpha rays

B Beta rays

C Gamma rays

D Cosmic rays

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39 : 08

Q : Electron and proton of equal momentum enter a uniform magnetic field normal to the lines of force. If the radii of curvature of circular paths be r_e and r_p respectively, then

A $\frac{r_e}{r_p} = \frac{1}{1}$

B $\frac{r_e}{r_p} = \frac{m_p}{m_e}$

C $\frac{r_e}{r_p} = \sqrt{\left(\frac{m_p}{m_e}\right)}$

D $\frac{r_e}{r_p} = \sqrt{\left(\frac{m_e}{m_p}\right)}$

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39 : 07

Q 28/50 40 min Hint

Q : A current flows in a conductor from east to west. The direction of the magnetic field at a points above the conductor is

A towards south

B towards east

C towards north

D towards west

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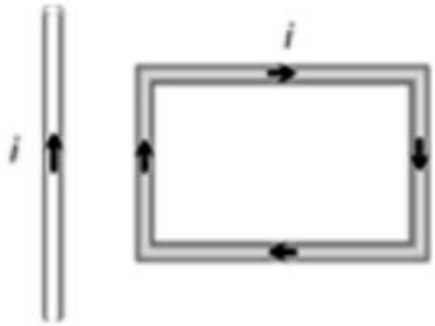
39 : 04

is situated near a long straight wire such that the wire is parallel to the one of the sides of the loop and is in the plane of the loop. If a steady current I is established in wire as shown in figure, the loop will



A remain stationary

B move away from the wire or towards right

C rotate about an axis parallel to the wire

D move towards the wire

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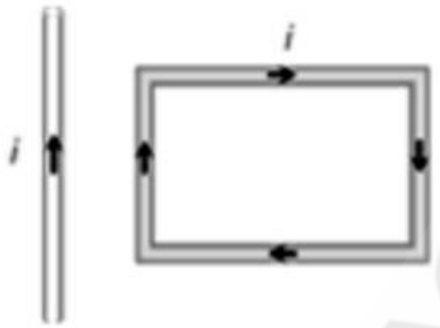
39 : 02

Q : A rectangular loop carrying a current i is situated near a long straight wire such that the wire is parallel to the one of the sides of the loop and is in the plane of the loop. If a steady current I is established in wire as shown in figure, the loop will



A remain stationary

B move away from the wire or towards right

C rotate about an axis parallel to the wire

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38 : 59

Q 30/50 40 min Hint

Q : 3 A of current is flowing in a linear conductor having a length of 40 cm. The conductor is placed in a magnetic field of strength 500 gauss and makes an angle of 30° with the direction of the field. It experiences a force of magnitude

A 3×10^{-4} newton

B 3×10^{4} newton

C 3×10^{-2} newton

D 3×10^{2} newton

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38 : 54

Q 31/50 40 min Hint

Q :

A coil having an area 2 m^2 is placed in a magnetic field which changes from 1 Wb/m^2 to 4 Wb/m^2 in a interval of 2 second. The e.m.f. induced in the coil will be

A 4 V

B 3 V

C 1.5 V

D 2 V

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38 : 50

Q 32/50 40 min Hint

Q : Which one of the following does not affect the magnitude of the induce emf in electromagnetic induction?

A The strength of the magnetic field linkage the coil

B The resistance of the coil cutting the magnetic field

C The speed with which the coil cuts the magnetic field

D The number of turns in the coil

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38 : 49

Q 33/50 40 min Hint

Q : A step-up transformer

A Increases power-level

B Increases voltage-level

C Decreases current-level

D Both B and C

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38 : 48

Q 34/50 40 min Hint

Q : The number of turns in the primary and secondary coil of a step up transformer are 200 and 500 respectively. If the power in the input is 100 Watt and current 1A then the output power and current will respectively

A 100 W, 2 A

B 400 W, 4 A

C 200 W, 0.2 A

D 100 W, 0.4 A

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38 : 46

Q 35/50 40 min Hint

Q : An A.C, generator produces alternating voltage with peak value of 220 V. The rms value of the alternating voltage is:

A $220\sqrt{2}\ Volts$

B $\frac{220^2}{\sqrt{2}}\ Volts$

C $\frac{220}{\sqrt{2}}\ Volts$

D $\frac{210^2}{\sqrt{2}}\ Volts$

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38 : 44

Q 36/50 40 min Hint

Q : If the instantaneous current in a circuit is given by I=2sin(wt+θ) amperes, the rms value of the current is

A $\sqrt{2}$ A

B 2 A

C $2\sqrt{2}$ A

D zero

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38 : 43

Q 37/50 40 min Hint

Q : In an ac circuit, peak value of voltage is 423 volts. Its effective voltage is

A 400 volts

B 323 volts

C 300 volts

D 340 volts

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38 : 41

Q 38/50 40 min Hint

Q : The ratio of the secondary to the primary turns in a transformer is 3:2 and the output power is P. Neglecting all power losses, the input power must be

A P/2

B 2P/3

C P

D 3P/2

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38 : 39

Q 39/50 40 min Hint

Q : In the step up transformer, when the alternating voltage increase then the alternating current will

A Increase

B Decrease

C Not change

D Not depend on core

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38 : 38

Q 40/50 40 min Hint

Q : If the core of transformer is of substance whose hysteresis loop area is decreased then the efficiency of transformer is

A increased

B same as original

C decreased

D none of these is possible

USAMA SOHAIL

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38 : 36

Q 41/50 40 min Hint

Q : The primary and secondary coils of a transformer are linked

A Electrically

B Chemically

C Magnetically

D Are not linked at all

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38 : 34

Q 42/50 40 min Hint

Q : If the secondary coil has N_s turns and the primary N_p turns, the relation between secondary and primary voltages is given by

A $V_s/V_p=N_p/N_s$

B $V_p/V_s=N_s/N_p$

C $V_s/V_p = N_s/N_p$

D $V_p/V_s=N_pN_s$

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38 : 33

Q 43/50 40 min Hint

Q : Why does a transformer have a core made of iron

A Iron has a high melting point

B Iron is a conductor of heat

C Iron is a conductor of electricity

D Iron is a magnetic material

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38 : 32

Q 44/50 40 min Hint

Q : A coil of wire is arranged with its plane perpendicular to a uniform magnetic field of flux density B. when the radius of the coil increases from r_1 to r_2 in time Δt, then what is the emf induced in the coil?

A $\frac{\pi B(r_2^2 - r_1^2)}{\Delta t}$

B $\frac{\pi B(r_2 - r_1)^2}{\Delta t}$

C $\frac{B(r_2^2 - r_1^2)}{\Delta t}$

D $\frac{\pi B(r_2^2 + r_1^2)}{\Delta t}$

39 40 41 42 43 44 4

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38 : 31

Q 44/50 40 min Hint

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B $\frac{\pi B(r_2 - r_1)^2}{\Delta t}$

C $\frac{B(r_2^2 - r_1^2)}{\Delta t}$

D $\frac{\pi B(r_2^2 + r_1^2)}{\Delta t}$

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38 : 29

Q 45/50 40 min Hint

Q : A step up transformer has transformation ratio of 3:2. What is the voltage in secondary if the primary voltage is 30 V?

A 20 V

B 45 V

C 60 V

D 15 V

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38 : 27

Q 46/50 40 min Hint

Q :

Eddy currents are produced in a material when it is

A Heated

B Placed in an electric field

C Placed in a time varying magnetic field

D Placed in a uniform magnetic field

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38 : 26

Q 47/50 40 min Hint

Q :

The coils of a step down transformer have 500 and 5000 turns. In the primary coil an AC of 4 A at 2200 volts in sent. The value of the current and potential difference in the secondary will be.

A 20 A, 22 V

B 40 A, 220 V

C 0.4 A, 22000 A

D 40 A, 22000V

44 45 46 47 48 49

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38 : 24

Q 48/50 40 min Hint

Q :

In a step up transformer the number of turns in

A Primary are less

B Primary and secondary are equal

C Primary are more

D Primary are infinite

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38 : 23

Q 49/50 40 min Hint

Q : The alternating current has frequency of 10^6 Hz, in such a way that time period for completion of cycle is

A 1μs

B 10^6sec

C 1.5μs

D 1sec

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38 : 22

Q 50/50 40 min Hint

Q :

Which of the following quantity remain same in the transformer?

A Current

B Voltage

C Frequency

D All of these

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 1/50

Q : In a circuit with a coil of resistance 2 ohms, the magnetic flux changes from 2.0 Wb to 10.0 Wb in 0.2 second. The charge that flows in the coil during this time is

A 5.0 coulomb

B 1.0 coulomb

C 4.0 coulomb

D 0.8 coulomb

1 2 3 4 5 6 7

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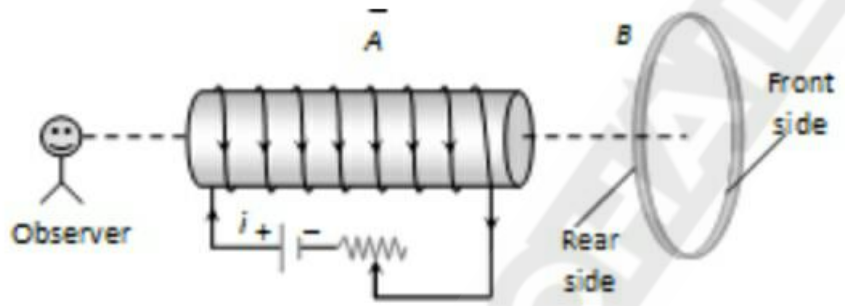
Self Assessment Test (Unit-8)

Incorrect

Q 2/50

Q : An aluminium ring *B* faces an electromagnet *A*. The current *I* through *A* can be altered



A Whether I increases or decreases, B will not experience any force

B If I increases, A will attract B

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1 2 3 4 5 6 7

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Self Assessment Test (Unit-8)

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Unattempted

Incorrect

Q 3/50

Q : The ratio of secondary to the primary turns in a transformer is 3 : 2. If the power output be *P*, then the input power neglecting all loses must be equal to

A 5 P

B 1.5 P

C P

D 2/5 P

1 2 3 4 5 6 7

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 4/50

Q : The efficiency of transformer is very high because

A There is no moving part in a transformer

B It produces very high voltage

C It produces very low voltage

D None of the above

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Self Assessment Test (Unit-8)

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Unattempted

Incorrect

Q 5/50

Q : A step-down transformer is used on a 1000 V line to deliver 20 A at 120 V at the secondary coil. If the efficiency of the transformer is 80% the current drawn from the line is .

A 3 A

B 0.3 A

C 30 A

D 2.4 A

1 2 3 4 5 6 7

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 6/50

Q : The force acting on a charge q moving with a velocity **v** in a magnetic field of induction **B** is given by:

A $q/(\vec{v} \times \vec{B})$

B $(\vec{v} \times \vec{B})/q$

C $q(\vec{V} \times \vec{B})$

D $q(\vec{V} . \vec{B})$

1 2 3 4 5 6 7

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USAMASOFAL

Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 7/50

Q : A 2 MeV proton is moving perpendicular to a uniform magnetic field of 2.5 T. The force on the proton is:

A 2.5×10^{-10} N

B 8×10^{-11} N

C 2.5×10^{-11} N

D 8×10^{-12} N

5 6 7 8 9 10 11

USAMASOFTL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 8/50

Q : A long straight current carrying conductor has current direction from bottom to top when held vertically. What will be the direction of magnetic field lines when observed from below the conductor?

A Clockwise

B Vertically upward

C Anticlockwise

D Vertically downward

5 6 7 8 9 10 11

USAMASOHAIL

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Self Assessment Test (Unit-8)

Incorrect

Q 9/50

Q : Two long straight wires are set parallel to each other at separation r and each carries a current I in the same direction. The strength of the magnetic field at any point midway between the two wires is

A $\frac{\mu_o I}{r}$

B $\frac{2\mu_o I}{r}$

C $\frac{2\mu_o I}{2r}$

D zero

5 6 7 8 9 10 11

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 10/50

Q : Three infinite straight wires A, B and C carry currents as shown in fig, the resultant force on wire B is directed

A Towards A

B Towards C

C Zero

5 6 7 8 9 10 11

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 11/50

Q : Magnetic lines of force

A Always intersect

B Are always closed

C Tend to crowd far away from the poles of a magnet

D Do not pass through vacuum

USAMA SOHAIL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 12/50

Q : An electron of mass m is accelerated through a potential difference of V and then it enters a magnetic field of induction B normal to the lines. Then the radius of the circular path is

A $\sqrt{\frac{2eV}{m}}$

B $\sqrt{\frac{2Vm}{eB^2}}$

C $\sqrt{\frac{2Vm}{eB}}$

8 9 10 11 12 13 14

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 13/50

Q : The magnitude of the force on a moving charge is maximum when angle between the velocity of the charge and the magnetic field is

A 0°

B 180°

C 90°

D 45°

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 14/50

Q :

When the current flowing through the wire is stopped, the magnetic field around the wire becomes.

A Doubles

B Half

C Remains same

D Zero

8 9 10 11 12 13 14

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 15/50

Q :

If a charge particle enters a uniform magnetic field there is a change in its

A Kinetic energy

B Magnitude of velocity

C Direction of velocity

D All of these

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 16/50

Q : PQRS is a square loop made of uniform conducting wire. If the current enters the loop at P and leaves at S, then the magnetic field will be:

A Maximum at the centre of the loop

B Zero at the centre of loop

C Zero at all points inside the loop

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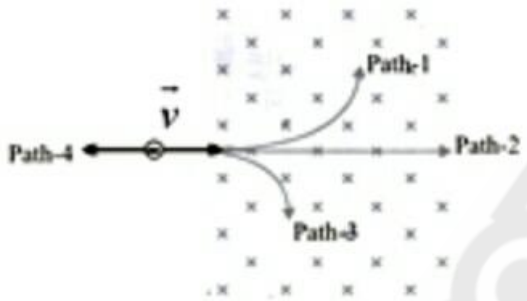
Q : The fig shows a uniform magnetic field **B** directed into the plane of paper. A particle with negative charge moves in the plane, which of four paths 1, 2, 3 or 4 does the particle follow



A Path 1

B Path 2

C Path 3

D Path 4

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 18/50

Q : Which of the following Statements is false?

A A stationary charge produces a constant electric field

B A moving charge with uniform speed produces a constant magnetic field.

C An accelerated charge produces combination of varying electric and magnetic field

D A conductor carrying steady current has no electric field in it

14 15 16 17 18 19 2

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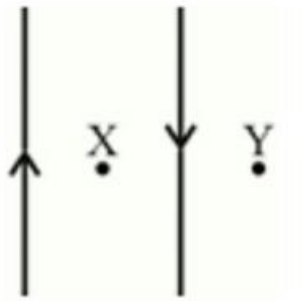
Q : Two current carrying conductors are placed parallel as shown in figure. Which point will experience the strong magnetic field?



A X

B Y

C Both experience same magnetic field

D None of these

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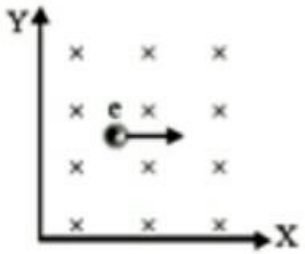
Self Assessment Test (Unit-8)

Incorrect

Q 20/50

Q : In the given figure the electron enters into the magnetic field. It deflects in.....direction



A +ve X direction

B + ve Y direction

C −ve X direction

D − ve Y direction

16 17 18 19 20 21 2

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USAMASOHAIL

Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 21/50

Q : In the formula F = q (v× B)

A F must be perpendicular to v but not necessarily to B

B F must be perpendicular to both v and B

C v must be perpendicular to B but not necessarily to F

D All three vectors must be mutually perpendicular

16 17 18 19 20 21 2

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USMANSOHAIL

Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 22/50

Q : The velocity of a particle of charge $+4.0 \times 10^{-9}$ C and mass 2×10^{-4} kg is perpendicular to a 0.1-tesla magnetic field. If the particle's speed is 3×10^{4} m/s, what is the acceleration of this particle due to the magnetic force?

A $0.0006\ m/s^2$

B $0.06\ m/s^2$

C $0.006\ m/s^2$

D $0.6\ m/s^2$

6 17 18 19 20 21 22

USAMASOFT

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Self Assessment Test (Unit-8)

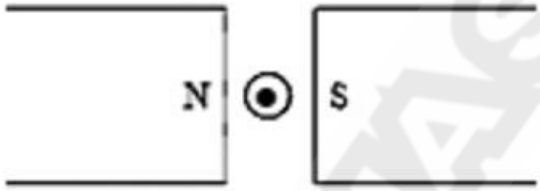
Correct

Unattempted

Incorrect

Q 23/50

Q : The diagram shows a straight wire carrying a flow of electrons into the page. The wire is between the poles of a permanent magnet. The direction of the magnetic force exerted on the wire is



A ↓

B ←

C →

19 20 21 22 23 24 25

USAMASOFT

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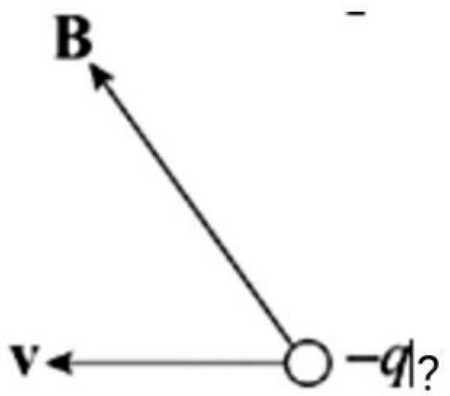
Incorrect

24/50

Q : In the figure below, what is the direction of the magnetic force F_B



A To the right

B Upward, in the plane of the page

C Downward, in the plane of the page

D Out of the plane of the page

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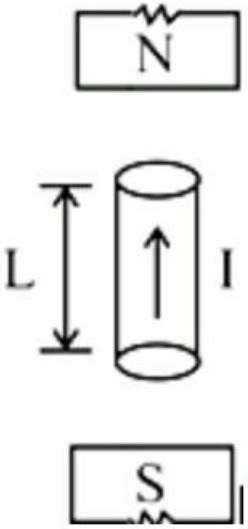
Q : A wire carrying current (I) is place in a region of magnetic field as shown in figure direction of force is



A into paper

B towards right

C out of paper

D no force is acting

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 26/50

Q : Which of the following cannot be deflected by a magnetic field?

A Alpha rays

B Beta rays

C Gamma rays

D Cosmic rays

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 27/50

Q : Electron and proton of equal momentum enter a uniform magnetic field normal to the lines of force. If the radii of curvature of circular paths be r_e and r_p respectively, then

A $\frac{r_e}{r_p} = \frac{1}{1}$

B $\frac{r_e}{r_p} = \frac{m_p}{m_e}$

C $\frac{r_e}{r_p} = \sqrt{\left(\frac{m_p}{m_e}\right)}$

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 28/50

Q : A current flows in a conductor from east to west. The direction of the magnetic field at a points above the conductor is

A towards south

B towards east

C towards north

D towards west

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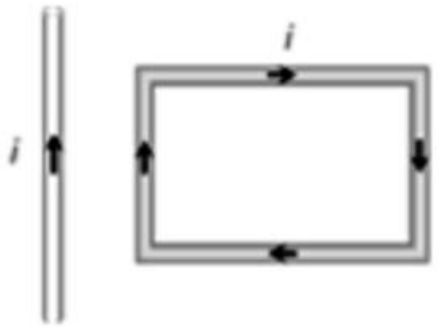
is situated near a long straight wire such that the wire is parallel to the one of the sides of the loop and is in the plane of the loop. If a steady current I is established in wire as shown in figure, the loop will



A remain stationary

B move away from the wire or towards right

C rotate about an axis parallel to the wire

D move towards the wire

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 30/50

Q : 3 A of current is flowing in a linear conductor having a length of 40 cm. The conductor is placed in a magnetic field of strength 500 gauss and makes an angle of 30° with the direction of the field. It experiences a force of magnitude

A 3×10^{-4} newton

B 3×10^{4} newton

C 3×10^{-2} newton

D 3×10^{2} newton

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 31/50

Q :

A coil having an area 2 m^2 is placed in a magnetic field which changes from 1 Wb/m^2 to 4 Wb/m^2 in a interval of 2 second. The e.m.f. induced in the coil will be

A 4 V

B 3 V

C 1.5 V

D 2 V

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USAMASOFTIL

Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 32/50

Q : Which one of the following does not affect the magnitude of the induce emf in electromagnetic induction?

A The strength of the magnetic field linkage the coil

B The resistance of the coil cutting the magnetic field

C The speed with which the coil cuts the magnetic field

D The number of turns in the coil

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 33/50

Q : A step-up transformer

A Increases power-level

B Increases voltage-level

C Decreases current-level

D Both B and C

USAMA SOHAIL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 34/50

Q : The number of turns in the primary and secondary coil of a step up transformer are 200 and 500 respectively. If the power in the input is 100 Watt and current 1A then the output power and current will respectively

A 100 W, 2 A

B 400 W, 4 A

C 200 W, 0.2 A

D 100 W, 0.4 A

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USAMASOFT

Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 35/50

Q : An A.C, generator produces alternating voltage with peak value of 220 V. The rms value of the alternating voltage is:

A $220\sqrt{2}\,Volts$

B $\frac{220^2}{\sqrt{2}}\,Volts$

C $\frac{220}{\sqrt{2}}\,Volts$

D $\frac{210^2}{\sqrt{2}}\,Volts$

31 32 33 34 35 36 37

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 36/50

Q : If the instantaneous current in a circuit is given by I=2sin(wt+θ) amperes, the rms value of the current is

A $\sqrt{2}$ A

B 2 A

C $2\sqrt{2}$ A

D zero

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USAMA SOHAIL

Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 37/50

Q : In an ac circuit, peak value of voltage is 423 volts. Its effective voltage is

A 400 volts

B 323 volts

C 300 volts

D 340 volts

USAMASOHAIL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 38/50

Q : The ratio of the secondary to the primary turns in a transformer is 3:2 and the output power is P. Neglecting all power losses, the input power must be

A P/2

B 2P/3

C P

D 3P/2

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USAMASOHAIL

Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 39/50

Q : In the step up transformer, when the alternating voltage increase then the alternating current will

A Increase

B Decrease

C Not change

D Not depend on core

USAMASOHAIL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 40/50

Q : If the core of transformer is of substance whose hysteresis loop area is decreased then the efficiency of transformer is

A increased

B same as original

C decreased

D none of these is possible

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USAMASOHAIL

Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 41/50

Q : The primary and secondary coils of a transformer are linked

A Electrically

B Chemically

C Magnetically

D Are not linked at all

USAMASOHAIL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 42/50

Q : If the secondary coil has N_s turns and the primary N_p turns, the relation between secondary and primary voltages is given by

A $V_s/V_p=N_p/N_s$

B $V_p/V_s=N_s/N_p$

C $V_s/V_p = N_s/N_p$

D $V_p/V_s=N_pN_s$

USAMASOFAL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 43/50

Q : Why does a transformer have a core made of iron

A Iron has a high melting point

B Iron is a conductor of heat

C Iron is a conductor of electricity

D Iron is a magnetic material

USAMASOHAIL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 44/50

Q : A coil of wire is arranged with its plane perpendicular to a uniform magnetic field of flux density B. when the radius of the coil increases from r_1 to r_2 in time Δt, then what is the emf induced in the coil?

A $\frac{\pi B\left(r_2^2 - r_1^2\right)}{\Delta t}$

B $\frac{\pi B\left(r_2 - r_1\right)^2}{\Delta t}$

C $\frac{B\left(r_2^2 - r_1^2\right)}{\Delta t}$

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 45/50

Q : A step up transformer has transformation ratio of 3:2. What is the voltage in secondary if the primary voltage is 30 V?

A 20 V

B 45 V

C 60 V

D 15 V

USAMASOHAIL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 46/50

Q :

Eddy currents are produced in a material when it is

A Heated

B Placed in an electric field

C Placed in a time varying magnetic field

D Placed in a uniform magnetic field

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 46/50

Q :

Eddy currents are produced in a material when it is

A Heated

B Placed in an electric field

C Placed in a time varying magnetic field

D Placed in a uniform magnetic field

43 44 45 46 47 48

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 47/50

Q :

The coils of a step down transformer have 500 and 5000 turns. In the primary coil an AC of 4 A at 2200 volts in sent. The value of the current and potential difference in the secondary will be.

A 20 A, 22 V

B 40 A, 220 V

C 0.4 A, 22000 A

D 40 A, 22000V

43 44 45 46 47 48

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 48/50

Q :

In a step up transformer the number of turns in

A Primary are less

B Primary and secondary are equal

C Primary are more

D Primary are infinite

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 49/50

Q : The alternating current has frequency of 10^6 Hz, in such a way that time period for completion of cycle is

A 1μs

B 10^6sec

C 1.5μs

D 1sec

USAMA SOHAIL

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Self Assessment Test (Unit-8)

Correct

Unattempted

Incorrect

Q 50/50

Q :

Which of the following quantity remain same in the transformer?

A Current

B Voltage

C Frequency

D All of these

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TEST

Test Level-3 (Unit-8)

50 Questions

40 min

Topics

TL-3 Unit (Electromagnetism & Electromagnetic Induction)

Start Test

USAMASOHAIL

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39 : 59

Q 1/50 40 min Hint

Q : A.C voltage source changes its polarity_____ in one period

A Once

B Twice

C Thrice

D None

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1 2 3 4 5 6 7

39 : 55

Q 2/50 40 min Hint

Q : A charged particle enters a magnetic field such that the direction of initial velocity is different from the direction of the field. Which of the following characteristics of the particle will not change with time?

A Momentum

B Kinetic energy

C Acceleration

D Direction of motion

1 2 3 4 5 6 7

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39 : 54

Q 3/50 40 min Hint

Q : A current of 10 A is flowing in a wire of length 1.5m. A force of 15N acts on it when it is placed in a uniform magnetic field of 2T. The angle between the magnetic field and the direction of the current is

A 30°

B 45°

C 60°

D 90°

1 2 3 4 5 6 7

USAMASOHAL

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39 : 53

Q 4/50 40 min Hint

Q : If a particle of charge 10^{-12} C moving along the X-direction with a velocity 10^{5} m/s experiences a force of 10^{-10} N in y-direction, then the minimum magnetic field is

A 6.25×10^{3} T in the positive z-direction

B 10^{-3} T in the positive Z-direction

C 10^{-15} T in the negative Z-direction

D 10^{-3} T in the negative Z-direction

1 2 3 4 5 6 7

USAMA SOHAIL

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39 : 51

Q 5/50 40 min Hint

Q : A magnetic field exerts a force on a charged particle

A Always

B If it is moving across the magnetic lines of force

C Never

D If it is moving along the magnetic lines of force

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39 : 50

Q 6/50 40 min Hint

Q : Lenz's law is a consequence of the law of conservation of

A Charge

B Mass

C Momentum

D Energy

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39 : 49

Q 7/50 40 min Hint

Q : An induced emf is produced when a magnet is plugged into a coil. The magnitude of the induced emf is independent of

A The strength of the magnet

B The speed with which the magnet is moved

C The resistivity of the wire of the coil

D The number of turns in the coil

USAMA SOHAIL

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39 : 46

Q 8/50 40 min Hint

Q : A step-up transformer is used on a 120 V line to provide a potential difference of 2400 V. If the primary coil has 75 turns, the number of turns in the secondary coil is

A 1500

B 1200

C 150

D 1575

USAMASOHAIL

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39 : 44

Q 9/50 40 min Hint

Q : Laminated core in a transformer is used to reduce

A Eddy current losses

B Iron losses

C Hysteresis losses

D Heat losses due to resistance

USAMASOHAIL

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39 : 42

Q 10/50 40 min Hint

Q : When current flows through a conductor in a direction out of the plane of paper the magnetic field has direction

A From left to right

B Clock wise

C From right to left

D Anti clockwise

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39 : 41

Q 11/50 40 min Hint

Q : When north pole of a magnet is moved towards the face of a coil then the face of coil act as

A North pole

B Neutral

C South pole

D We cannot predict about it

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39 : 40

Q 12/50 40 min Hint

Q : The loss a power in transformer is due to

A Eddy current

B Resistance of coils

C Magnetic hysteresis

D All

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39 : 38

Q 13/50 40 min Hint

Q : When a current carrying conductor is placed in a magnetic field. It moves from a region of

A Stronger to weak field

B Strong to weak if current is large

C Weak to strong field

D Weak to strong if current is large

USAMASOHAIL

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39 : 36

Q 14/50 40 min Hint

Q : The force experienced by a conductor of length 'L' carrying current I, placed perpendicular in uniform magnetic field 'B' is

A $\vec{F} = ILB\hat{n}$

B $\vec{F} = I(\vec{L}.\vec{B})$

C $\vec{F} = (\vec{L} \times \vec{B})$

D $F = ILB\cos\theta$

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39 : 35

Q 15/50 40 min Hint

Q : When the current flowing through the wire is stopped, the magnetic field around the wire becomes.

A Doubles

B Half

C Remains same

D Zero

USAMASOHAIL

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39 : 32

Q 16/50 40 min Hint

Q : The SI unit of magnetic flux is Weber which is equal to

A NmA^{-1}

B NAm^{-1}

C Nm^2A^{-1}

D NmA^{-2}

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39 : 30

Q 17/50 40 min Hint

Q : Magnetic field is caused by

A Stationary charge

B A moving negative charges only

C A moving positive charges only

D Moving positive and negative charges both

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39 : 29

Q 18/50 40 min Hint

Q : An ideal transformer steps up or steps down

A Energy

B D.C voltage

C A.C voltage

D Power

USAMASOHAIL

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39 : 27

Q 19/50 40 min Hint

Q : A proton enters in a magnetic field of strength B(Tesla) with speed v, parallel to the direction of magnetic lines of force. The force on the proton is

A evB

B Zero

C ∞

D $\frac{evB}{2}$

USAMASOHAIL

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39 : 26

Q 20/50 40 min Hint

Q : A proton charge (+e coulomb) enters in a magnetic field of strength B(Tesla) making an angle 30° with the direction of magnetic field with speed v. The magnetic force on the proton is

A evB

B ∞

C Zero

D $\frac{evB}{2}$

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39 : 23

Q 21/50 40 min Hint

Q : The direction of induced current in a circuit is always such that it opposes the cause due to which it is produced. This law is named as

A Ohm's Law

B Lenz's Law

C Kirchoff's Law

D Faraday's Law

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39 : 21

Q 22/50 40 min Hint

Q : Eddy Currents are

A Induced currents due to a changing magnetic field

B Unstable currents in a conductor

C Induced currents due to high magnetic field

D None of these

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39 : 21

Q 22/50 40 min Hint

Q : Eddy Currents are

A Induced currents due to a changing magnetic field

B Unstable currents in a conductor

C Induced currents due to high magnetic field

D None of these

USAMASOHAIL

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39 : 19

Q 23/50 40 min Hint

Q : A current in the coil flowing in clock wise direction decreases gradually with the passage of time. The direction of induced current is

A Clockwise

B Anticlockwise

C Upward

D Downward

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39 : 17

Q 24/50 40 min Hint

Q : A transformer has 100 turns in primary coil and 200 turns in the secondary coil. If 200 V emf is induced in the secondary coil then the input emf is

A 2000 V

B 400 V

C 400000 V

D 100 V

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39 : 15

Q 25/50 40 min Hint

Q : The ratio of emf across primary coil to the emf across secondary coil is

A $\frac{N_s}{N_P}$

B $\frac{I_s}{I_P}$

C $\frac{I_s^2}{I_p^2}$

D None of these

USAMASOHAIL

www.saeedmdcat.com

39 : 13

Q 26/50 40 min Hint

Q : In step up transformer, voltage in the secondary increases and power in secondary

A Remain same

B Decreases because voltage increases

C Increases because current decreases

D May increases if voltage remain same

SAMASOHAIL

www.saeedmdcat.com

39 : 12

Q 27/50 40 min Hint

Q : The e/m of neutron is

A Greater than that of proton

B Infinite

C Greater than that of electron

D Zero

USAMA SOHAIL

www.saeedmdcat.com

39 : 08

Q 28/50 40 min Hint

Q : Lenz's law

A Is the same as the right-hand palm rule

B Determines the magnitude of an induced emf

C Bears no relation to the law of conservation of energy

D Is useful in deciding the direction of an induced emf

USAMASOHAIL

www.saeedmdcat.com

39 : 05

Q 30/50 40 min Hint

Q : The core of a transformer is laminated so that

A Ratio of voltage in the primary and secondary may be increased

B Energy losses due to eddy currents may be minimized

C Weight of transformer may be reduced

D Rusting may be prevented

www.saeedmdcat.com

39 : 06

Q 29/50 40 min Hint

Q : Power is transmitted from a power house from high voltage AC because

A Electric current travels faster at higher voltage

B It is more economical due to less power wastage

C It is difficult to generate power at a low voltage

D Chances of stealing transmission lines are minimized

USAMASOHAIL

www.saeedmdcat.com

39 : 03

Q 31/50 40 min Hint

Q : A wire of length 2 m carries a current of 10 A. What is the force acting on it when it is placed at an angle of 45° to the uniform magnetic field of 0.15 T?

A 1.2 N

B 3.2 N

C 2.5 N

D $\frac{3}{\sqrt{2}} N$

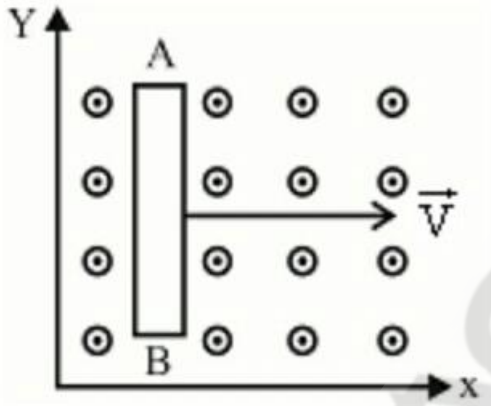
USAMASOHAIL

www.saeedmdcat.com

39 : 01

Q 32/50 40 min Hint

Q : A conductor rod AB moves parallel to x-axis in a uniform magnetic field, pointing in the positive x-direction. The end A of the rod gets;



A Positively charged

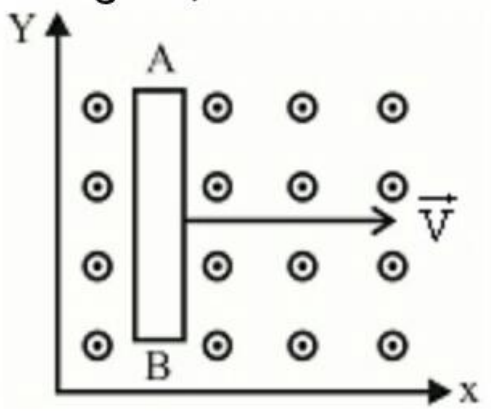
B Negatively charged

C Neutral

USAMASOHAIL
www.saeedmdcat.com

39 : 00

Q : A conductor rod AB moves parallel to x-axis in a uniform magnetic field, pointing in the positive x-direction. The end A of the rod gets;



A Positively charged

B Negatively charged

C Neutral

D First positively charged and then negatively charged

USAMASOHAIL
www.saeedmdcat.com

38 : 58

Q 33/50 40 min Hint

Q : A step up transformer operates on a 230 volt line and supplies to a load of 2 amp. The ratio of primary to secondary windings is 1:25. Determine the primary current.

A 12.5 amp

B 50 amp

C 8.8 amp

D 25 amp

USAMASOHAIL

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38 : 54

Q 35/50 40 min Hint

Q : A transformer is used to

A Convert alternating current to direct current

B Convert direct current to alternating current

C Convert mechanical energy to electrical energy

D change the level of alternating voltage

USAMASOHAIL

www.saeedmdcat.com

38 : 56

Q 34/50 40 min Hint

Q : An aeroplane is moving towards north horizontally with a speed of 200 ms^{-1} at a place where the vertical component of earth's magnetic field is 0.5×10^{-4} tesla. Then the induced emf set up between the tips of the wings of the plane, if they are 10 m apart, is

A 0.1 volt

B 0.01 volt

C 10 volt

D 1 volt

USAMASOHAIL

www.saeedmdcat.com

38 : 52

Q 36/50 40 min Hint

Q : In a transformer, the number of turns of primary coil and secondary coil are 5 and 4 respectively. If 220 V is applied on the primary coil, then the ratio of primary current to the secondary current is

A 4 : 5

B 5 : 4

C 5 : 9

D 9 : 5

USAMASOHAIL

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38 : 48

Q 37/50 40 min Hint

Q : A step down transformer, transforms 220 volt to 11 volt. If the current in primary and secondary coil are 5A and 90 A respectively, efficiency of transformer is

A 70%

B 40%

C 20%

D 90%

USAMASOHAIL

www.saeedmdcat.com

38 : 46

Q 38/50 40 min Hint

Q : The direction of magnetic lines of force produced by passing a direct current in a conductor is

A Perpendicular to the conductor and coming outward

B Perpendicular to the conductor and going inward

C Parallel to conductor

D Surrounding the conductor and of circular nature

USAMASOHAIL

www.saeedmdcat.com

38 : 45

Q 39/50 40 min Hint

Q : Protons are shot perpendicular to a magnetic field

A The magnetic field will have no influence on the motion of the protons

B The protons will continue to move in the same direction but will gain momentum

C The protons will continue to move in the opposite direction but will gain momentum

D They will bend in an arc of a circle

USAMASOHAIL

www.saeedmdcat.com

38 : 40

Q 41/50 40 min Hint

Q : A uniform magnetic field acts at right angles to the direction of motion of electrons. As a result, the electron moves in a circular path of radius 2 cm. If the speed of the electrons is doubled, the radius of the path will be;

A 2.0 cm

B 0.5 cm

C 4.0 cm

D 1.0 cm

USAMASOHAIL

www.saeedmdcat.com

38 : 42

Q 40/50 40 min Hint

Q : An electron and a proton travel with equal speed and in the same direction, at 90° to a uniform magnetic field. They experience forces, which are initially

A In opposite direction and differing by a factor of about 1840

B In the same direction and differing by a factor of 1840

C Equal but in opposite direction

D Identical

USAMA SOHAIL

www.saeedmdcat.com

38 : 38

Q 42/50 40 min Hint

Q : A proton and an alpha-particle enter a uniform magnetic field with the same velocity. The period of rotation of the alpha-particle will be

A Four times that of the proton

B Two times that of the proton

C Three times that of the proton

D Same as that of the protons

USAMASOHAIL

www.saeedmdcat.com

38 : 37

Q 43/50 40 min Hint

Q : A uniform electric field and a uniform magnetic field are produced, pointed in the same direction. An electron is projected with its velocity pointed in the same direction.

A The electron will turns to its right

B the electron velocity will increase in magnitude

C The electron will turns to its right

D The electron velocity will decrease in magnitude

USAMASOHAIL

www.saeedmdcat.com

38 : 33

Q : A proton (mass m and charge +e) and an alpha particle (mass 4m and charge +2e) are projected with the same kinetic energy at right angles to a uniform field. Which one of the following statements will be true?

A. The alpha particle will be bent in a circular path with a smaller radius than that of the proton

B. The radius of the path of the alpha-particle will be greater than that of the proton

C. The alpha-particle and the proton will be bent in a circular path, with the same radius

D. The alpha-particle and the proton will go through the field in a straight line

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38 : 32

Q 45/50 40 min Hint

Q : A positively charged particle moving due east enters a region of uniform magnetic field directed vertically upwards. This particle will:

A Get deflected in vertically upward direction

B Move in circular path with an increased speed

C Move in circular path with decreased speed

D move in circular path with uniform speed

USAMA SOHAIL

www.saeedmdcat.com

38 : 29

Q 46/50 40 min Hint

Q : When a charged particle moves in the direction of a uniform magnetic field

A It gains energy from the field

B It loses energy to the field

C It neither gains nor changes energy and momentum

D Momentum changes but not energy

USAMASOHAIL

www.saeedmdcat.com

38 : 27

Q 47/50 40 min Hint

Q : A proton and an electron with equal momentum are thrown in a magnetic field then;

A both remain un-deflected

B path of electron will be more curved than proton

C Path of proton will be more curved than electron

D Path of both particles will be equally curved

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USAMA SOHAIL

38 : 25

Q 48/50 40 min Hint

Q : The magnetic flux linked with a vector area $\vec{A}$ in a uniform magnetic field $\vec{B}$ is:

A $\vec{B} \times \vec{A}$

B $\vec{B}.\vec{A}$

C AB

D B/A

USAMASOHAIL

www.saeedmdcat.com

38 : 24

Q 49/50 40 min Hint

Q : When an electron is moving in a region of perpendicular magnetic field $\vec{B}$, then

A Work done by the field is zero

B Velocity of electron is constant

C Acceleration of electron is zero

D Acceleration of electron is constant along the tangent to the circular path

USAMA SOHAIL

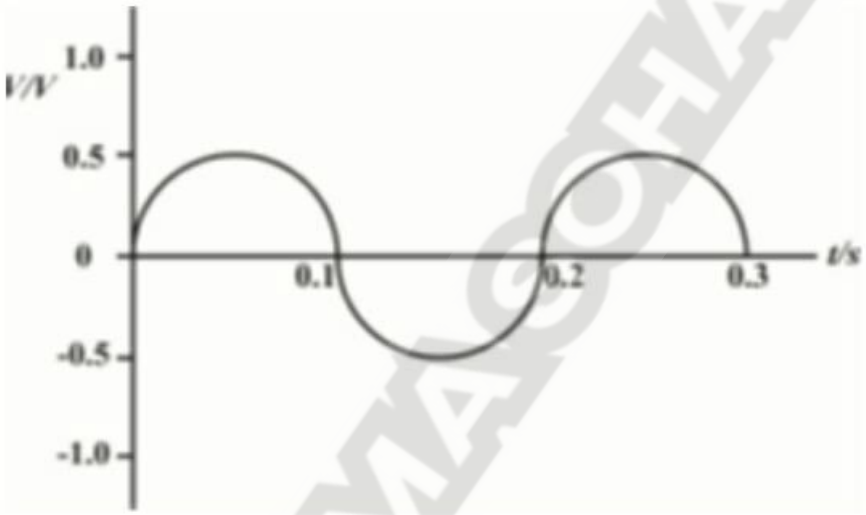
www.saeedmdcat.com

38 : 21

Q 50/50 40 min Hint

Q :

The graph shows the variation with time t of a low-frequency alternating voltage V.



Which expression is a representation of this voltage?

A $0.5\sin(0.4\pi t)$

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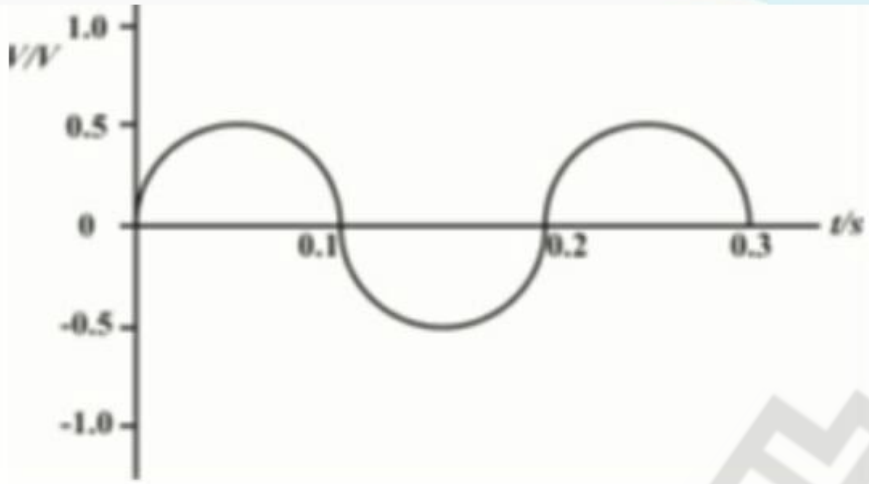
38 : 18



Which expression is a representation of this voltage?

A $0.5\sin(0.4\pi t)$

B $0.5\sin(10\pi t)$

C $1.0\sin(0.2\pi t)$

D $1.0\sin(10\pi t)$

USMANSOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 1/50

Q : A.C voltage source changes its polarity_____ in one period

A Once

B Twice

C Thrice

D None

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 2/50

Q : A charged particle enters a magnetic field such that the direction of initial velocity is different from the direction of the field. Which of the following characteristics of the particle will not change with time?

A Momentum

B Kinetic energy

C Acceleration

D Direction of motion

1 2 3 4 5 6 7

USAMASOFAL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 3/50

Q : A current of 10 A is flowing in a wire of length 1.5m. A force of 15N acts on it when it is placed in a uniform magnetic field of 2T. The angle between the magnetic field and the direction of the current is

A 30°

B 45°

C 60°

D 90°

1 2 3 4 5 6 7

USAMASOFT

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 5/50

Q : A magnetic field exerts a force on a charged particle

A Always

B If it is moving across the magnetic lines of force

C Never

D If it is moving along the magnetic lines of force

1 2 3 4 5 6 7

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 4/50

Q : If a particle of charge 10^{-12} C moving along the X-direction with a velocity 10^{5} m/s experiences a force of 10^{-10} N in y-direction, then the minimum magnetic field is

A 6.25×10^{3} T in the positive z-direction

B 10^{-3} T in the positive Z-direction

C 10^{-15} T in the negative Z-direction

D 10^{-3} T in the negative Z-direction

1 2 3 4 5 6 7

USAMASOFIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 6/50

Q : Lenz's law is a consequence of the law of conservation of

A Charge

B Mass

C Momentum

D Energy

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 8/50

Q : A step-up transformer is used on a 120 V line to provide a potential difference of 2400 V. If the primary coil has 75 turns, the number of turns in the secondary coil is

A 1500

B 1200

C 150

D 1575

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 7/50

Q : An induced emf is produced when a magnet is plugged into a coil. The magnitude of the induced emf is independent of

A The strength of the magnet

B The speed with which the magnet is moved

C The resistivity of the wire of the coil

D The number of turns in the coil

1 2 3 4 5 6 7

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 9/50

Q : Laminated core in a transformer is used to reduce

A Eddy current losses

B Iron losses

C Hysteresis losses

D Heat losses due to resistance

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 11/50

Q : When north pole of a magnet is moved towards the face of a coil then the face of coil act as

A North pole

B Neutral

C South pole

D We cannot predict about it

USAMA SOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 10/50

Q : When current flows through a conductor in a direction out of the plane of paper the magnetic field has direction

A From left to right

B Clock wise

C From right to left

D Anti clockwise

6 7 8 9 10 11

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 12/50

Q : The loss a power in transformer is due to

A Eddy current

B Resistance of coils

C Magnetic hysteresis

D All

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 14/50

Q : The force experienced by a conductor of length 'L' carrying current I, placed perpendicular in uniform magnetic field 'B' is

A $\vec{F} = ILB\hat{n}$

B $\vec{F} = I(\vec{L}.\vec{B})$

C $\vec{F} = (\vec{L} \times \vec{B})$

D $F = ILB\cos\theta$

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 13/50

Q : When a current carrying conductor is placed in a magnetic field. It moves from a region of

A Stronger to weak field

B Strong to weak if current is large

C Weak to strong field

D Weak to strong if current is large

USAMA SOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 15/50

Q : When the current flowing through the wire is stopped, the magnetic field around the wire becomes.

A Doubles

B Half

C Remains same

D Zero

USAMA SOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 17/50

Q : Magnetic field is caused by

A Stationary charge

B A moving negative charges only

C A moving positive charges only

D Moving positive and negative charges both

USAMA SOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 16/50

Q : The SI unit of magnetic flux is Weber which is equal to

A NmA^{-1}

B NAm^{-1}

C Nm^2A^{-1}

D NmA^{-2}

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 18/50

Q : An ideal transformer steps up or steps down

A Energy

B D.C voltage

C A.C voltage

D Power

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 20/50

Q : A proton charge (+e coulomb) enters in a magnetic field of strength B(Tesla) making an angle 30° with the direction of magnetic field with speed v. The magnetic force on the proton is

A evB

B ∞

C Zero

D $\frac{evB}{2}$

16 17 18 19 20 21 2

USAMASOFAL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 19/50

Q : A proton enters in a magnetic field of strength B(Tesla) with speed v, parallel to the direction of magnetic lines of force. The force on the proton is

A evB

B Zero

C ∞

D $\frac{evB}{2}$

16 17 18 19 20 21 2

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 21/50

Q : The direction of induced current in a circuit is always such that it opposes the cause due to which it is produced. This law is named as

A Ohm's Law

B Lenz's Law

C Kirchoff's Law

D Faraday's Law

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 22/50

Q : Eddy Currents are

A Induced currents due to a changing magnetic field

B Unstable currents in a conductor

C Induced currents due to high magnetic field

D None of these

USAMA SOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 23/50

Q : A current in the coil flowing in clock wise direction decreases gradually with the passage of time. The direction of induced current is

A Clockwise

B Anticlockwise

C Upward

D Downward

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 24/50

Q : A transformer has 100 turns in primary coil and 200 turns in the secondary coil. If 200 V emf is induced in the secondary coil then the input emf is

A 2000 V

B 400 V

C 400000 V

D 100 V

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 26/50

Q : In step up transformer, voltage in the secondary increases and power in secondary

A Remain same

B Decreases because voltage increases

C Increases because current decreases

D May increases if voltage remain same

USAMA SOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 25/50

Q : The ratio of emf across primary coil to the emf across secondary coil is

A $\frac{N_s}{N_P}$

B $\frac{I_s}{I_P}$

C $\frac{I_s^2}{I_p^2}$

D None of these

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 27/50

Q : The e/m of neutron is

A Greater than that of proton

B Infinite

C Greater than that of electron

D Zero

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 29/50

Q : Power is transmitted from a power house from high voltage AC because

A Electric current travels faster at higher voltage

B It is more economical due to less power wastage

C It is difficult to generate power at a low voltage

D Chances of stealing transmission lines are minimized

24 25 26 27 28 29 30

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 28/50

Q : Lenz's law

A Is the same as the right-hand palm rule

B Determines the magnitude of an induced emf

C Bears no relation to the law of conservation of energy

D Is useful in deciding the direction of an induced emf

USAMA SOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

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Unattempted

Incorrect

Q 30/50

Q : The core of a transformer is laminated so that

A Ratio of voltage in the primary and secondary may be increased

B Energy losses due to eddy currents may be minimized

C Weight of transformer may be reduced

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www.saeedmdcat.com

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Q 32/50

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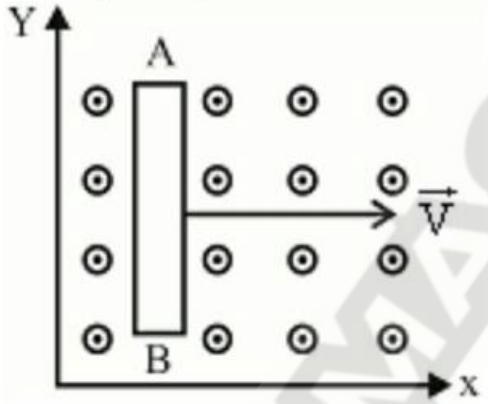

A Positively charged

B Negatively charged

29 30 31 32 33 34 35

USAMASOHAIL
www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 31/50

Q : A wire of length 2 m carries a current of 10 A. What is the force acting on it when it is placed at an angle of 45° to the uniform magnetic field of 0.15 T?

A 1.2 N

B 3.2 N

C 2.5 N

D $\frac{3}{\sqrt{2}} N$

29 30 31 32 33 34 35

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

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A 12.5 amp

B 50 amp

C 8.8 amp

D 25 amp

29 30 31 32 33 34 35

USAMASOMAL

www.saeedmdcat.com

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Unattempted

Incorrect

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Q : An aeroplane is moving towards north horizontally with a speed of 200 ms^{-1} at a place where the vertical component of earth's magnetic field is 0.5×10^{-4} tesla. Then the induced emf set up between the tips of the wings of the plane, if they are 10 m apart, is

A 0.1 volt

B 0.01 volt

C 10 volt

D 1 volt

29 30 31 32 33 34 35

USAMASOFT

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 35/50

Q : A transformer is used to

A Convert alternating current to direct current

B Convert direct current to alternating current

C Convert mechanical energy to electrical energy

D change the level of alternating voltage

USAMA SOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 36/50

Q : In a transformer, the number of turns of primary coil and secondary coil are 5 and 4 respectively. If 220 V is applied on the primary coil, then the ratio of primary current to the secondary current is

A 4 : 5

B 5 : 4

C 5 : 9

D 9 : 5

USAMASOFT

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 37/50

Q : A step down transformer, transforms 220 volt to 11 volt. If the current in primary and secondary coil are 5A and 90 A respectively, efficiency of transformer is

A 70%

B 40%

C 20%

D 90%

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 38/50

Q : The direction of magnetic lines of force produced by passing a direct current in a conductor is

A Perpendicular to the conductor and coming outward

B Perpendicular to the conductor and going inward

C Parallel to conductor

D Surrounding the conductor and of circular nature

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 39/50

Q : Protons are shot perpendicular to a magnetic field

A The magnetic field will have no influence on the motion of the protons

B The protons will continue to move in the same direction but will gain momentum

C The protons will continue to move in the opposite direction but will gain momentum

D They will bend in an arc of a circle

38 39 40 41 42 43

USAMASHAL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 40/50

Q : An electron and a proton travel with equal speed and in the same direction, at 90° to a uniform magnetic field. They experience forces, which are initially

A In opposite direction and differing by a factor of about 1840

B In the same direction and differing by a factor of 1840

C Equal but in opposite direction

D Identical

38 39 40 41 42 43

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 41/50

Q : A uniform magnetic field acts at right angles to the direction of motion of electrons. As a result, the electron moves in a circular path of radius 2 cm. If the speed of the electrons is doubled, the radius of the path will be;

A 2.0 cm

B 0.5 cm

C 4.0 cm

D 1.0 cm

38 39 40 41 42 43

USAMASOFT

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 42/50

Q : A proton and an alpha-particle enter a uniform magnetic field with the same velocity. The period of rotation of the alpha-particle will be

A Four times that of the proton

B Two times that of the proton

C Three times that of the proton

D Same as that of the protons

USAMASOHAIL

www.saeedmdcat.com

Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 44/50

Q : A proton (mass m and charge +e) and an alpha particle (mass 4m and charge +2e) are projected with the same kinetic energy at right angles to a uniform field. Which one of the following statements will be true?

A The alpha particle will be bent in a circular path with a smaller radius than that of the proton

B The radius of the path of the alpha-particle will be greater than that of the proton

C The alpha-particle and the proton will be bent in a circular path, with the same radius

40 41 42 43 44 45

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Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 43/50

Q : A uniform electric field and a uniform magnetic field are produced, pointed in the same direction. An electron is projected with its velocity pointed in the same direction.

A The electron will turns to its right

B the electron velocity will increase in magnitude

C The electron will turns to its right

D The electron velocity will decrease in magnitude

38 39 40 41 42 43

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Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 45/50

Q : A positively charged particle moving due east enters a region of uniform magnetic field directed vertically upwards. This particle will:

A Get deflected in vertically upward direction

B Move in circular path with an increased speed

C Move in circular path with decreased speed

D move in circular path with uniform speed

40 41 42 43 44 45

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Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 46/50

Q : When a charged particle moves in the direction of a uniform magnetic field

A It gains energy from the field

B It loses energy to the field

C It neither gains nor changes energy and momentum

D Momentum changes but not energy

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Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 47/50

Q : A proton and an electron with equal momentum are thrown in a magnetic field then;

A both remain un-deflected

B path of electron will be more curved than proton

C Path of proton will be more curved than electron

D Path of both particles will be equally curved

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Test Level-3 (Unit-8)

Correct

Unattempted

Incorrect

Q 48/50

Q : The magnetic flux linked with a vector area $\vec{A}$ in a uniform magnetic field $\vec{B}$ is:

A $\vec{B} \times \vec{A}$

B $\vec{B}.\vec{A}$

C AB

D B/A

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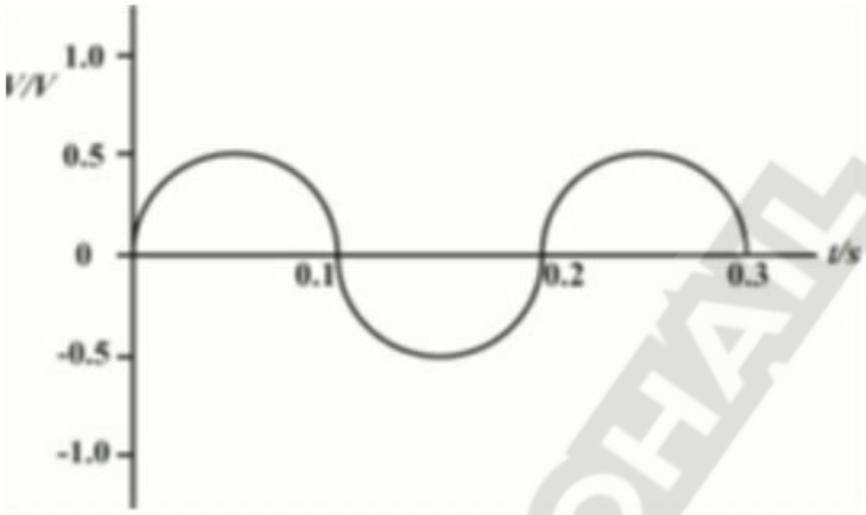
The graph shows the variation with time t of a low-frequency alternating voltage V.



Which expression is a representation of this voltage?

A $0.5\sin(0.4\pi t)$

B $0.5\sin(10\pi t)$

C $1.0\sin(0.2\pi t)$

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