# PHYSICS

# BOOKS - VGS BRILLIANT PHYSICS (TELUGU ENGLISH)

# ELECTROMAGNETISM

## Review Of Your Previous Knowledge

**1.** How do electric appliances work?

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**2.** How do electromagnets work?

Watch Video Solution

**3.** Is there any relation between electricity and magnetism?

Watch Video Solution

**4.** Can we produce magnetism from electricity?

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## Textual Lesson Part Improve Your Learning

**1.** Are the magnetic field lines closed? Explain.

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**2.** See figure, magnetic lines are shown. What is the direction of the current

Watch Video Solution

**3.** A bar magnet with north pole facing towards a coil moves as shown in figure. What happens to the magnetic flux passing through the coil?

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**4.** The direction of current flowing in a coil is shown in the figure. What type of magnetic pole is formed at the face that has flow of current as shown in the figure?

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**5.** Take a bar magnet and bring it near the T.V screen . What do you observe?

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**6.** Explain the working of electric motor with a neat diagram.

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**7.** The value of magnetic field induction which is uniform is 2T. What is the flux passing through a surface of area $1.5m^2$ perpendicular to the field.

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**8.** A force of 8 N acts on a rectangular conductor 20 cm long placed perpendicular to a magnetic field. Determine the magnetic field induction if the current in the conductor is 40A.

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**9.** How do you verify experimentally that the current carrying conductor experiences a force when it is kept in magnetic field?

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**10.** Explain faraday's law of inductions with the help of activity?

Watch Video Solution

**11.** Explain the working of AC electric generator with a neat diagram.

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**12.** Explain the working of DC generator with a neat diagram.

 Watch Video Solution

**13.** Rajkumar said to you that the magnetic field lines are open and they start at north pole of bar magnet and end at south pole. What questions do you ask Rajkumar to correct him by saying "Field lines are closed"?

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**14.** How can you verify that a current carrying wire produces a magnetic field with the help of an experiment?

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**15.** Name the device that converts electrical energy into mechanical energy . Draw its diagram and label the parts.

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**16.** Draw a neat diagram of an AC generator.

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**17.** Could we get Farday's law of induction from conservation of energy ?

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**18.** Give a few applications of Faraday's law of induction in daily life.

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**19.** Which of the various methods of current generation protects the nature well. Give

examples to support your answer.

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## Textual Lesson Part Improve Your Learning Fill In The Blanks

**1.** The SI unit of magnetic field induction is .....

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**2.** Magnetic flux is the product of magnetic field induction and.....

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**3.** The charge is moving along the direction of magnetic field. Then force acting on it is.....

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**4.** The magnetic force on a current carrying wire placed in uniform magnetic field if the wire is oriented perpendicular to magnetic field is

Watch Video Solution

**5.** Faraday's law of induction is the consequences of.....

Watch Video Solution

## Textual Lesson Part Improve Your Learning Multiple Choice Questions

**1.** Which converts mechanical energy into electrical energy?

A. motor

B. battery

C. generator

D. switch

**Answer: A**

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**2.** Which converts mechanical energy into electrical energy?

A. motor

B. battery

C. generator

D. switch

**Answer: C**

Watch Video Solution

**3.** The magnetic force on a current carrying wire placed in uniform magnetic field if the wire is oriented perpendicular to magnetic field is

A. 0

B. ILB

C. 2ILB

D. $ILB/2$

**Answer: B**

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## Question Given In The Lesson 1 Mark

**1.** Why does the needle get defelected by the magnet?

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**2.** How can we find the strength of the field and direction of the field ?

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**3.** Can we give certain values to magnitude of the field at every point in the magnetic field?

Watch Video Solution

**4.** What is the flux through unit area perpendicular to the field?

Watch Video Solution

**5.** Can we generalize the formula of flux for any orientation of the plane taken in the field?

Watch Video Solution

**6.** What is the flux through the plane taken parallel to the field?

Watch Video Solution

**7.** What is the use of introducing the ideas of magnetic flux and magnetic flux density?

Watch Video Solution

**8.** Are there any sources of magnetic field other than magnets?

Watch Video Solution

**9.** Do you know how old electric calling bells works?

Watch Video Solution

**10.** What happens when a current carrying wire is placed in a magnetic field?

Watch Video Solution

**11.** Do you feel any sensation on your skin?

Watch Video Solution

**12.** What could be the reason for that?

Watch Video Solution

**13.** Why does the picture get distored?

Watch Video Solution

**14.** Is the motion of electrons reaching the screen affected by the magnetic field of the bar magnet?

Watch Video Solution

**15.** Can we calculate the force experienced by a charge moving in a magnetic field?

Watch Video Solution

**16.** Can we generalize the equation for magnetic force on charge when there is an angle $'\theta'$ between the directions of field "B" and velocity "v"?

Watch Video Solution

**17.** What is the magnetic force on the charge moving parallel to the magnetic field?

Watch Video Solution

**18.** What is the direction of magnetic force acting on a moving charge?

Watch Video Solution

**19.** Can you determinate the magnetic force on a current carrying wire which is placed along a magnetic field?

Watch Video Solution

**20.** What is the force on a wire if its length (L ) makes an angle $'\theta'$ with the magnetic field (B) when the current passing in the wire is I?

Watch Video Solution

**21.** How could you find its (current carrying wire) direction?

Watch Video Solution

**22.** Is the direction of deflection observed experimentally same as that of the theoretically expected one ?

Watch Video Solution

**23.** Does the right hand rule give the explanation for the direction of magnetic force exerted by magnetic field on the wire?

Watch Video Solution

**24.** Can you give a reason for it (deflection of wire)?

Watch Video Solution

**25.** Does the deflection fit with the direction of magnetic force found by right hand rule?

Watch Video Solution

**26.** What happens when a current carrying coil is placed in a uniform magnetic field?

Watch Video Solution

**27.** Can we use this knowledge to construct an electric motor?

Watch Video Solution

**28.** What is the angle made by AB and CD with magnetic field?

Watch Video Solution

**29.** Can you the direction of magnetic force on sides AB and CD?

Watch Video Solution

**30.** What are the directions of forces on BC and DA?

Watch Video Solution

**31.** What is the net force on the rectangular coil?

Watch Video Solution

**32.** Why does the coil rotate?

Watch Video Solution

**33.** What happens do the rotation of the coil if the direction of current in the coil remains

unchanged?

Watch Video Solution

**34.** How could you make the coil rotate continuously?

Watch Video Solution

**35.** How can we achieve this (convertion of electrical energy to mechanical energy)?

Watch Video Solution

**36.** What happens when a coil is continuously rotated in a uniform magnetic field?

Watch Video Solution

**37.** How is current produced?

Watch Video Solution

**38.** Why is there a difference in behaviour in these two cases?

Watch Video Solution

**39.** What force supports the ring against gravity when it is being levitated?

Watch Video Solution

**40.** Could the ring be levitated if DC is used?

Watch Video Solution

**41.** What is this unknown force acting on the metal ring?

Watch Video Solution

**42.** What is responsible for the current in the metal ring?

Watch Video Solution

**43.** What could you conclude from the above analysis (metal ring lifts up and falls down)?

Watch Video Solution

**44.** Which law explained the direction of induced current in a coil?

Watch Video Solution

**45.** Can you apply conservation of energy for electromagnetic induction?

Watch Video Solution

**46.** Can you guess what could be the direction of induced current in the coil in such case?

Watch Video Solution

**47.** Could we get Farday's law of induction from conservation of energy ?

Watch Video Solution

**48.** Can you derive an expression for the force applied on crosswire by the field "B"?

Watch Video Solution

**49.** What happens when a coil is continuously rotated in a uniform magnetic field?

Watch Video Solution

**50.** Can you guess the reason for variation of current from zero to maximum and vice-versa during the rotation of coil?

Watch Video Solution

**51.** Is the direction of current induced in the coil constant? Does it change?

Watch Video Solution

**52.** Can you guess the reason for variation of current from zero to maximum and vice-versa during the rotation of coil?

Watch Video Solution

**53.** Can we make use of this current? IF so, how?

Watch Video Solution

**54.** How can we get DC current using a generator?

Watch Video Solution

**55.** What changes do we need to make in an AC generator to be converted into a DC generator?

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## Question Given In The Lesson 2 Mark

**1.** If DC is used the metal ring lifts up falls down immediately. Why?

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**2.** How could we use the principle of electromagnetic induction in the case of using ATM card when its magnetic strip is swiped through a scanner? Discuss with your friends or teachers.

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## Creative Question For New Model Examination Sec 1

**1.** Who has demonstrated an experiment to show that electricity and magnetism were related phenomena , at first?

Watch Video Solution

**2.** Guess the reason for the deflection of the compass,in the Oersted experiment.

Watch Video Solution

**3.** Which appartus do you use to draw a magnetic field lines around a bar magnet?

Watch Video Solution

**4.** Magnetic field lines are

A. two dimensional

B. three dimensional

C. no dimensional

D. one dimensional

**Answer: B**

Watch Video Solution

**5.** How is a magnetic field characterized?

Watch Video Solution

**6.** How do you find the direction of a magnetic field lines?

Watch Video Solution

**7.** Draw the magnetic field lines to form around of the bar magnet?

Watch Video Solution

**8.** Place a compass at a point on a curved magnetic field line. How do needle of the compass come to rest?

Watch Video Solution

**9.** 

Show the direction of field at point A.

View Text Solution

**10.** Are the magnetic field lines closed? Explain.

Watch Video Solution

**11.** How is field strength , when the field lines are crowded?

Watch Video Solution

**12.** S: The field lines around a bar magnet is non-uniform

R: The strength and direction of field lines change from point to point.

A. S' and 'R' are correct and 'R' is correct explanation of 'A'

B. S' and 'R' are correct but 'R' is not a correct explanation of 'A'

C. S is correct but R is wrong

D. S is wrong R is correct

**Answer: A**

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**13.** What is called by the number of lines passing through the plane of area 'A' perpendicular to the field?

Watch Video Solution

**14.** How do you denote magnetic flux with a symbol?

Watch Video Solution

**15.** What is the SI unit of magnetic flux?

Watch Video Solution

**16.** Write formula for magnetic flux density.

Watch Video Solution

**17.** What are the units of magnetic flux density?

 Watch Video Solution

**18.** What is tesla?

 Watch Video Solution

**19.** $\phi = BA\cos\theta$. In the given formula, what is $\theta$?

Watch Video Solution

**20.** What is the flux through the plane taken parallel to the field?

Watch Video Solution

**21.** What is the shape of the magnetic field lines around a current carrying straight wire?

Watch Video Solution

**22.** If the current flows through a straight wire vertically upwards(out of page).How the direction field lines are?

Watch Video Solution

**23.** IF the current flows through a straight wire in downwards direction. How the direction of field lines are?

Watch Video Solution

**24.** Which rule is useful to determinate the direction of field lines around a bar magnet?

Watch Video Solution

**25.** Draw the magnetic field lines around a current carrying wire. If the direction of current is out of the page?

Watch Video Solution

**26.** When you curl your right hand fingers in the direction of current. Which finger shows the direction of magnetic field?

Watch Video Solution

**27.** Draw the diagram of a solenoid.

Watch Video Solution

**28.** How do you make a solenoid with a long copper wire?

Watch Video Solution

**29.** Bar magnetic field lines are same as field lines around the

A. straight wire carrying current

B. coil carrying current

C. solenoid carrying current

D. None of these

**Answer: C**

Watch Video Solution

**30.** What is the direction of magnetic field line inside of a solenoid?

Watch Video Solution

**31.** What is the magnetic field lines outside of a solenoid?

Watch Video Solution

**32.** a) Current carrying wires produce magnetic field.

b) Electric changes in motion produce magnetic fields.

Which is / are correct statements?

Watch Video Solution

**33.** Take a bar magnet and bring it near the T.V screen . What do you observe?

Watch Video Solution

**34.** What is the force on a charged particle of charge "q" moving with a velocity "v" in a uniform magnetic field of induction B ? When does it become maximum ?

Watch Video Solution

**35.** What is the magnetic force on the charge moving parallel to the magnetic field?

Watch Video Solution

**36.** How is the direction of magnetic force with respect to the direction of both velocity and magnetic field?

Watch Video Solution

**37.** For which charge right hand rule is applicable?

Watch Video Solution

**38.** What is the magnetic force (F) on the straight wire (length L) carrying current which is kept perpendicular to a uniform magnetic field 'B'?

Watch Video Solution

**39.** What is the force on a wire if its length (L ) makes an angle $'\theta'$ with the magnetic field (B) when the current passing in the wire is I?

Watch Video Solution

**40.** Which rule is used to find out the direction of force on the current carrying wire?

Watch Video Solution

**41.** Draw a diagram of field lines due to horse shoe magnet between it poles.

Watch Video Solution

**42.** Draw a diagram of shuffled magnetic field lines when a horse shoe magnet is placed near a current carrying wire as shown in the figure.

Watch Video Solution

**43.** What will happens if the direction of current through the coil (which is placed in a magnetic field) is reversed every half rotation?

Watch Video Solution

**44.** What is working principle of electric motors?

Watch Video Solution

**45.** Give one application of the principle "Electrical energy is converted into mechanical energy".

Watch Video Solution

**46.** What will happens to metal ring.When DC is used in the above experiment?

Watch Video Solution

**47.** What is EMF?

Watch Video Solution

**48.** What is the reason (or responsible) for the generation of current in the coil when a bar magnet rotates in it?

Watch Video Solution

**49.** State Faraday's law of electromagnetic induction.

Watch Video Solution

**50.** Which law states that "The induced current will appear in such a direction that it opposes the changes in the flux in the coil"?

Watch Video Solution

**51.** Which law explained the direction of induced current in a coil?

Watch Video Solution

**52.** Give one application to law of electromagnetic induction.

Watch Video Solution

**53.** In which derive mechanical energy is converted into electrial energy?

Watch Video Solution

**54.** What is meant by AC?

Watch Video Solution

**55.** In which current the direction of change flow reverse periodically?

Watch Video Solution

**56.** How many half slip rings are connected to ends of the coil in DC generator?

Watch Video Solution

**57.** A: Magnetic needle in compass deflects when it kept near current carrying wire.

R: Current carrying wire produces magnetic field.

A. Both A are R correct,R is not correct explanation of A.

B. A is correct,R is not correct

C. Both A and R are correct,R is correct explanation of A.

D. A is wrong,R is correct

**Answer: C**

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## Creative Question For New Model Examination Sec 2

**1.** What happens when a current carrying wire is placed in a magnetic field?

Watch Video Solution

**2.** Draw the magnetic field lines to form around of the bar magnet?

Watch Video Solution

**3.** Correct the diagram according to Lenz law and draw it again.

View Text Solution

**4.** IF the current flows through a straight wire in downwards direction. How the direction of field lines are?

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## Creative Question For New Model Examination Sec 2 Conceptual Understanding

**1.** Who proposed that a magnetic field is present at a current carrying wire?

Watch Video Solution

**2.** How is a magnetic field characterized?

Watch Video Solution

**3.** What is the direction of magnetic field lines?

Watch Video Solution

**4.** What is the use of magnetic field lines?

Watch Video Solution

**5.** Why the magnetic field drawn is non-uniform?

Watch Video Solution

**6.** Define magnetic flux.

Watch Video Solution

**7.** Write formula for magnetic flux density.

Watch Video Solution

**8.** Write the formula for magnetic flux passing through an area A. with an angle $\theta$.

Watch Video Solution

**9.** What is the flux through the plane taken parallel to the field?

Watch Video Solution

**10.** Calculate the force experienced by a change moving in a magnetic field and perpendicular to the field?

Watch Video Solution

**11.** What is the magnetic force on moving charge when there is an angle $\theta$ between the directions of field 'B' and velocity 'v'?

Watch Video Solution

**12.** What is the magnetic force on the charge moving parallel to the magnetic field?

Watch Video Solution

**13.** What is the direction of magnetic force acting on a moving charge?

Watch Video Solution

**14.** What is the direction of force acting on a negative charge moving in a field?

Watch Video Solution

**15.** What is the force on a conductor of length L carrying a current "I" placed in a magnetic

field of induction B ? When does it become maximum ?

Watch Video Solution

**16.** State the principle of an electric motor. Name some appliances in which the Electric motor is used.

Watch Video Solution

**17.** State Faraday's law of electromagnetic induction.

Watch Video Solution

**18.** State Lenz's law.

Watch Video Solution

**19.** At an airport, a person is made to walk through the doorway of a metal detector, for

security reasons. If she/he is carrying anything made of metal, the metal detector emits a sound. On what principle does this detector work ?

Watch Video Solution

**20.** What is the principle of generator?

Watch Video Solution

**21.** What is the difference between AC generator and DC generator?

Watch Video Solution

**22.** What are the characteristics of AC current?

Watch Video Solution

**23.** On What factors the magnetic induction at the centre of the coil depends?

Watch Video Solution

**24.** Name the instrument on which Ampere's law is used.

Watch Video Solution

**25.** Which is more dangerous AC or DC?

Watch Video Solution

**26.** Is the magnetic field formed in a solenoid is uniform or non-uniform?

Watch Video Solution

**27.** Is electromagnetic field a vector or a scalar?

Watch Video Solution

**28.** In an electric bell which is attracted towards electromagnet?

Watch Video Solution

**29.** What is Maxwells right hand screw rule?

Watch Video Solution

**30.** What type of energy transformation take place in electric generator?

Watch Video Solution

**31.** What is electromagnet?

Watch Video Solution

**32.** IF the strength of the electric current increases, does the magnetic field increase or decrease?

Watch Video Solution

**33.** What is the shape of the magnetic field lines around a current carrying straight wire?

Watch Video Solution

**34.** What is the relation between tesla and ampere-meter?

Watch Video Solution

**35.** State two ways by which speed or rotation of rotation of electric motor can be increased.

Watch Video Solution

**36.** Is what from the energy in a current carrying coil is stored?

Watch Video Solution

**37.** Draw the diagram of a solenoid.

Watch Video Solution

**38.** What is the direction of magnetic field line inside of a solenoid?

Watch Video Solution

**39.** List any two properties of magnetic field lines.

Watch Video Solution

**40.** Take a bar magnet and bring it near the T.V screen . What do you observe?

Watch Video Solution

**41.** What is meant by electromagnetic induction?

Watch Video Solution

**42.** What is induced Emf?

Watch Video Solution

**43.** What will happens if we sprinkle iron fillings around a current carrying wire?

Watch Video Solution

**44.** Here the directions of the field (B) is given for a positive charge. What is the direction of the field (B) for a negative charge?

View Text Solution

**45.** Dheeraj was brought a loud speaker nearer to a working television.

He observed the picture in the TV.

He got many doubts in his mind.

What would be those

Watch Video Solution

**46.** IF the current in the coil is in anti-clockwise then what would be the face of the coil?

Watch Video Solution

**47.** IF the current in the coil is in clockwise then what would be the face of the coil?

Watch Video Solution

**48.** When will be the magnetic field uniform?

Watch Video Solution

**49.** What happens to the magnetic field at the centre on increasing current through the solenoid?

Watch Video Solution

**50.** What happens if an iron place is dropped between two poles of strong magnet?

Watch Video Solution

**51.** IF a copper rod carries a direct current,then where will the magnetic field in the conductor?

Watch Video Solution

**52.** Which device is used to determine the direction of magnetic field of a bar magnet?

Watch Video Solution

**53.** Are the magnetic field lines closed? Explain.

Watch Video Solution

**54.** What are the materials required to prove that Faraday's law?

Watch Video Solution

**55.** What do you conclude about magnetic field lines after conducting experiment with

solenoid?

Watch Video Solution

**56.** How would you demonstrate the presence of an induced current in the absence of a galvanometer ?

Watch Video Solution

**57.** There are a) current carrying wire

b) current carrying circular coil

c) Current carrying solenoid.

Where do you observe closed field lines?

Watch Video Solution

**58.** Mark north and south pole in the given diagram.

View Text Solution

**59.** Draw the direction of the magnetic field at 'P'.

View Text Solution

**60.** Draw the magnetic field lines in uniform magnetic field.

Watch Video Solution

**61.** Which of the following is appreciable in the making of a motor? Why?

a) A current carrying wire is kept in a uniform magnetic field.

b) A current carrying coil is kept in a uniform magnetic field.

c) A negative charge is kept in a uniform magnetic field.

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**62.** How do you appreciate a horse shoe magnet in the making of a motor?

Watch Video Solution

**63.** Mention two uses of solenoid.

Watch Video Solution

**64.** Give one application to law of electromagnetic induction.

Watch Video Solution

**65.** Where the electromagnets are used?

Watch Video Solution

**66.** What is the frequency of the A.C. supplied in your house?

Watch Video Solution

**67.** Which instruments detects small currents?

Watch Video Solution

**68.** Name the appliances working with the principle of Induced emf

Watch Video Solution

**69.** Give one application of the principle "Electrical energy is converted into mechanical

energy".

Watch Video Solution

**70.** Find the length of the conductor which is moving with a speed of $10m/s$ in the direction perpendicular to the direction of magnetic field of induction 0.8T.if it induces an emf of 8V between ends of the conductor.

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## Creative Question For New Model Examination Sec 3

**1.** Anand appreciated the law behind the making of 'generator'. Name the law and state it.

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**2.** State Right hand rule with a labelled diagram.

Watch Video Solution

**3.** A coil of insulated copper wire is connected to a Galvanometer.

What happens, if a bar magnet is.....

pushed into the coil?

Watch Video Solution

**4.** A coil of insulated copper wire is connected to a Galvanometer.

What happens, if a bar magnet is.....

withdrawn from inside the coil?

Watch Video Solution

**5.** A coil of insulated copper wire is connected to a Galvanometer.

What happens, if a bar magnet is.....

held stationary inside the coil?

Watch Video Solution

**6.** With the help of the given figure, the teacher explained that magnetic field lines are closed lines are not open lines. Write the questions which you will ask to your teacher whether the given statement is right or wrong.

View Text Solution

**7.** Bar magnetic field lines are same as field lines around the

Watch Video Solution

**8.** Which energy we get from an electric motor? Write two daily life application of the electric motor?

Watch Video Solution

**9.** Explain Oersted experiment to show that Electricity and Magnetism were related phenomena.

Watch Video Solution

**10.** List out the material required for Oersted experiment and mention the precautions to be taken in the experiment.

Watch Video Solution

## Creative Question For New Model Examination Sec 3 Conceptual Understanding

**1.** How can we find the direction of magnetic field due to straight wire carrying current?

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**2.** How can we find the direction of magnetic field due to coil or solenoid carrying current?

Watch Video Solution

**3.** What is the direction of magnetic force when velocity of charge is perpendicular to the magnetic field.

Watch Video Solution

**4.** Establish a relation between change of magnetic flux and induced EMF.

Watch Video Solution

**5.** Does the right hand rule give the explanation for the direction of magnetic force exerted by magnetic field on the wire?

Watch Video Solution

**6.** State Faraday's law of electromagnetic induction.

Watch Video Solution

**7.** The magnetic flux inside a coil of 400 turns changes for each single turn with time as shown in figure. Determine the maximum induced emf generated in the coil. Is there any change in induced EMF from t=0.1 second to 0.3 second?

View Text Solution

**8.** What will happens if a magnetic compass is placed below a wire with electricity ? Why?

Watch Video Solution

**9.** What happens when a current carrying wire is placed in a magnetic field?

Watch Video Solution

**10.** What will happens if we bring a horse shoe magnet at the top of the current carrying wire?

Watch Video Solution

**11.** 

a) What will happens when AC is passed ?

b) What will happen when DC is passed?

View Text Solution

**12.** 

a) What will happen when the magnet pushes?

b) When the happen when the magnet does not push?

View Text Solution

**13.** Rithvik got many doubts while observing an induction stove. What would be those?

Watch Video Solution

**14.** What is the force on a conductor of length L carrying a current "I" placed in a magnetic field of induction B ? When does it become maximum ?

Watch Video Solution

**15.** List out the material required for Oersted experiment and mention the precautions to be taken in the experiment.

Watch Video Solution

**16.** How do you say that the motion of electrons is affected by the magnetic field?

Watch Video Solution

**17.** How do you exhibit the magnetic force on a current carrying wire in your lab?

Watch Video Solution

**18.** Look at the figure and answer the given questions:

a) By what the given figure is indicated?

b) What is the direction of the current?

View Text Solution

**19.** Draw the arrangement of apparatus to show that a current carrying wire enerts magnetic field.

Watch Video Solution

**20.** Draw a diagram which shows that the effect of a magnetic field on a current carrying wire.

Watch Video Solution

**21.** Draw the magnetic field lines to the given solenoid.

View Text Solution

**22.** Draw a diagram of field lines due to horse shoe magnet between it poles.

Watch Video Solution

**23.** What is the shape of the magnetic field lines around a current carrying straight wire?

Watch Video Solution

**24.** Draw the magnetic field lines in uniform magnetic field.

Watch Video Solution

**25.** Draw the diagram of a solenoid.

Watch Video Solution

**26.** 

Draw a free body diagram of a metal ring.

View Text Solution

**27.** Why is Oersted appreciable?

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**28.** Who generated emf current at first time?

How do you appreciate him /her ?

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**29.** How do you appreciate the role of induced emf in your daily life?

Watch Video Solution

**30.** Your friend asked you to explain the working principle involved in a induction stove. What is your answer.

Watch Video Solution

**31.** Do these devices produced induced emf ?

A) electrical stove b) electrical iron box c) electrical induction stove d) electrical bulb

Watch Video Solution

**32.** State the principle of an electric motor. Name some appliances in which the Electric motor is used.

Watch Video Solution

**33.** What principles are involved in the given devies , which are available in your home or a shop?

a) electrical fan b) battery c) motor pump d) solar pannels e) current generator f) induction stove g) electric heater h) dynamo

Watch Video Solution

**34.** Name the appliances working with the principle of Induced emf

Watch Video Solution

**35.** Give one application of the principle "Electrical energy is converted into mechanical energy".

Watch Video Solution

## Creative Question For New Model Examination Sec 4

**1.** How can you verify with experiment."The magnetic field lines are closed loops"?

Watch Video Solution

**2.** Name the device that converts electrical energy into mechanical energy . Draw its diagram and label the parts.

Watch Video Solution

**3.** List out the materials required for the Oersted experiment of electromagnetism. Write the procedure of its experiment. What do you understand by this experiment?

Watch Video Solution

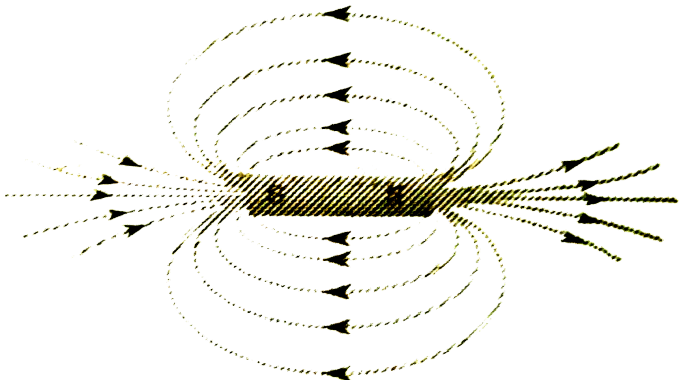
**4.** Why the current carrying straight wire which is kept in a uniform magnetic field , perpendiculary to the direction of the field bends aside? Explain this process with a

diagram showing the direction of forces acting on the wire.

Watch Video Solution

**5.** Write the experimental procedure and observations of the experiment that is to be performed to observe the magnetic field formed due to solenoid.

View Text Solution



**6.**

Answer the following questions by observing above diagram

1) Which device function of working does the above figure gives?

2) What is the angle made by AB and CD with magnetic field?

3) What are the directions of magnetic forces on sides AB and CD?

4) What is the net force acting on the rectangular coil?

View Text Solution

**7.** List out the apparatus and experimental procedure for the experiment to observe a current carrying wire experience a magnetic force when it is kept in uniform magnetic field.

Watch Video Solution

**8.** Explain the working process of induction stove.

Watch Video Solution

**9.** Which device is used to convert mechanical energy into electrical energy? Draw a neat diagram and label the parts of this device.

Watch Video Solution

**10.** A coil is hung as shown in the figure.A bar magnet with north pole facing the coil is moved perpendicularly

How does the magnetic flux passing through the coil change?

Watch Video Solution

**11.** A coil is hung as shown in the figure.A bar magnet with north pole facing the coil is moved perpendicularly

State the direction of the flow of the current induced as the coil,keeping the direction of bar magnet In views.

Watch Video Solution

**12.** A coil is hung as shown in the figure.A bar magnet with north pole facing the coil is moved perpendicularly

Explain the reason for induced current.

Watch Video Solution

**13.** Can you apply conservation of energy for electromagnetic induction?

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**14.** Explain the working process of induction stove.

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**15.** How the tape of a tape recorder reproduces voice?

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**16.** Explain different ways to induced current in a coils.

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**17.** A charged particle 'q' is moving with a speed 'v' perpendicular to the magnetic field of induction B.Find the radius of the path and time period of the particle.

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**18.** A circular coil of radius 10 cm, 500 turns and resistance $2\Omega$ is placed with its place,perpendicular to the horizontal component of the earth's magnetic field. It is

rotated about its vertical diameter through $180^{\circ}$ in 0.25 sec . Estimate the magnitudes of the EMF and current induced in the coil . [horizontal component of the earth's magnetic field at the place is $3.0 \times 10^{-5} T$).

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**19.** Karthik did not understand the word induced emf. Hemanth was explained him by asking some question.What would be those question.

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**20.** How can you verify with experiment."The magnetic field lines are closed loops"?

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**21.** Some devices are given here

a) Solenoid b) Bar magnet c) Motor d) generator (AC) e) Generator (DC)

Which of the above are related to uniform magnetic fields?

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**22.** Some devices are given here

a) Solenoid b) Bar magnet c) Motor d) generator (AC) e) Generator (DC)

Which of the above forms a magnetic field when current is passed?

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**23.** Some devices are given here

a) Solenoid b) Bar magnet c) Motor d) generator (AC) e) Generator (DC)

What is the difference between 'd' and 'e'?

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**24.** Some devices are given here

a) Solenoid b) Bar magnet c) Motor d) generator (AC) e) Generator (DC)

Which one converts electrical energy into mechanical energy?

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**25.** 

a) What are the directions of magnetic force on AB,CD,BC and DA ?

b) What is the net force on the rectangular coil?

c) What happens to the rotation of the coil if the direction of current in the coil remains

unchanged?

d)How could you make the coil rotate continuously?

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**26.** Draw a diagram of field lines due to horse shoe magnet between it poles.

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**27.** Draw the magnetic fields formed due to

Straight wire carrying current out of the page.

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**28.** Draw the magnetic fields formed due to

Circular coil carrying current.

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**29.** Draw the magnetic fields formed due to Solenoid carrying current.

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**30.** How do you appreciate the role of brushes and slip rings in a motor?

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