PHYSICS

BOOKS - MBD NCERT SOLUTIONS

MAGNETIC EFFECTS OF ELECTRIC CURRENT

Multiple Choice Questions

1. A stationary charge is surrounded by :

A. neither electric nor magnetic field

B. electric field only

C. magnetic field only

D. magnetic as well as electric field

Answer: B

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2. A dynamo converts

A. mechanical energy to electric energy

B. electric energy to mechanical energy

C. none of these

D.

Answer: A

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3. Frequency of A.C. in India is-

A. zero

B. 50Hz

C. 100 Hz

D. infinity

Answer: B

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4. Strength of electromagnet can be increased by

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5. Electromagnetic induction was discovered by ..... .

A. Faraday

B. Ampere

C. Coulomb

D. none of these

Answer: A

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6. The direction of the magnetic field produced by a linear current is given by

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7. The direction of magnetic field around a current carrying conductor is given by

A. right hand grip rule

B. left hand grip rule

C. Fleming's left hand rule

D. Fleming's right hand rule

Answer: A

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8. Safety fuse is used in :

A. neutral wire

B. earth wire

C. live wire

D. none of these

Answer: C

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9. Work of electric motor is

A. Fleming's left hand rule

B. Fleming's right hand rule

C. Snow rule

D. Ampere's swimming rule

Answer: A

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10. Safety fuse wire should be made of :

A. Copper

B. silver

C. alloy of lead and tin

D. rubber

Answer: C

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Very Short Answer Questions

1. Does a stationary charge has magnetic field around it ?

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2. What is electromagnetic induction?

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3. What happens if a current carrying conductor is placed in magnetic field ?

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4. A dynamo

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5. On what principle is an a.c. generator based ?

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6. What is electric motor ?

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7. What is the principle upon which electric motor is based ?

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8. Name some devices in which electric motors are used.

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9. The effect of magnetic field on stationary charge Is

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10. when the speed of a dc motor increase the armature current

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11. Why are the coils of electric toasters made of an alloy than a pure metal ?

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12. A metal used to make the filament of an electric bulb.

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Short Answer Type Questions

1. Compare the permanent magnet and an electromagnet.

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2. Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal ?

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3. Write note on magnetic field in human being and animals.

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4. A generator or dynamo works on the principle:

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5. What are hazards of electricity ?

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6. What the two main precautions to be taken while using an electric supply?

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7. Distinguish between the terms 'overloading' and 'short-circuiting' as used in domestic circuits.

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8. Describe an experiment to illustrate the action of an electric fuse.

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9. What is the necessity of earthing an electric appliance ?

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10. State Fleming's left-hand rule.

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11. Write Fleming's left hand rule.

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12. What is the role of the split-ring in an electric motor?

Watch Video Solution

13. Explain different ways to induce current in a coil.

Watch Video Solution

14. Name some sources of direct current.

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15. Which sources produce alternating current?

Watch Video Solution

16. Name two safety measures commonly used in electric circuits and appliances.

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17. What precaution should be taken to avoid the overloading of domestic electric circuits?

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18. State the right hand thumb rule.

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19. Explain the use of Fleming,s right-hand rule in finding the direction of current induced in the conductor.

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20. State one advantage of AC over DC.

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21. What do you mean by earthing?

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Long Answer Type Questions

1. Draw a labelled diagram of an electric motor. Explain its principle and working. What is the function of a split-ring in an electric motor?

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2. Explain the underlying principle and working of an electric generator by drawing a labelled diagram. What is the function of brushes?

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3. Describe the magnetic field due to current through a circular loop.

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4. What is a solenoid ? Draw the magnetic lines of force around the current carrying solenoid. Write the use of solenoid.

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Example

1. Why does a compass needle get deflected when brought near a bar magnet?

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2. Draw magnetic field lines around a bar magnet.

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3. List the properties of magnetic lines of force.

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4. Write the characteristics of magnetic field lines. Draw the magnetic field lines due to a current flowing in a circular coil.

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5. State right hand thumb rule to determine the direction of magnetic field around a current carrying conductor. Apply this rule to find the direction of magnetic field inside and outside a circular loop of wire lying in the

plane of a table and current is flowing through it clockwise .

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6. The magnetic field in a given region is uniform. Draw a diagram to represent it.

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7. Choose the correct option:

The magnetic field inside a long straight

solenoid carrying current:

A. is zero

B. decreases as we move towards end

C. increase as we move towards

D. momentum

Answer:

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8. Which of the following properties of a proton can change while it moves freely in a mangetic field? (There may be more than one correct answer).

A. mass

B. speed

C. velocity

D. mmentum

Answer:

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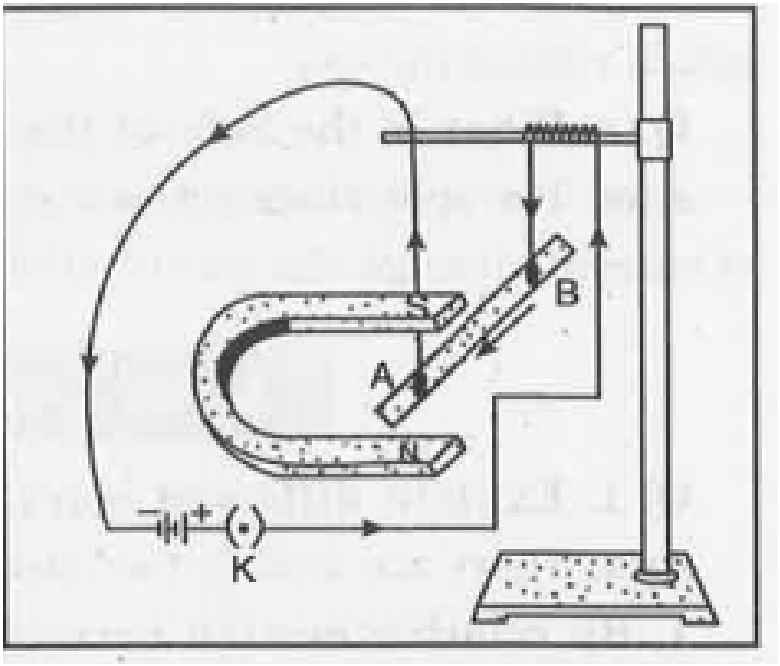
9. In activity shown,how do you think the displacKHOent of rod AB will be affected :if the current in rod ab is increased,



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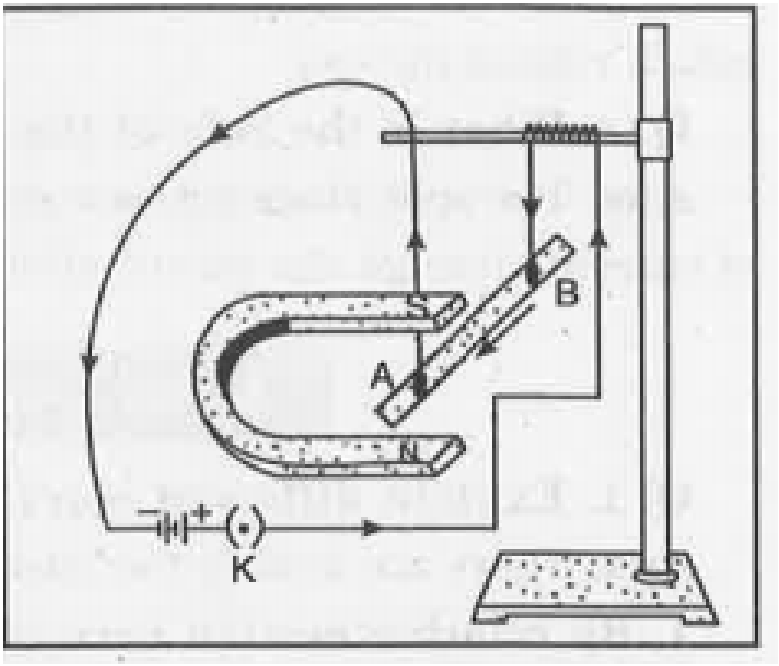
10. In activity shown,how do you think the displacKHOent of rod AB will be affected :A stronger horse shoe magnet is used,



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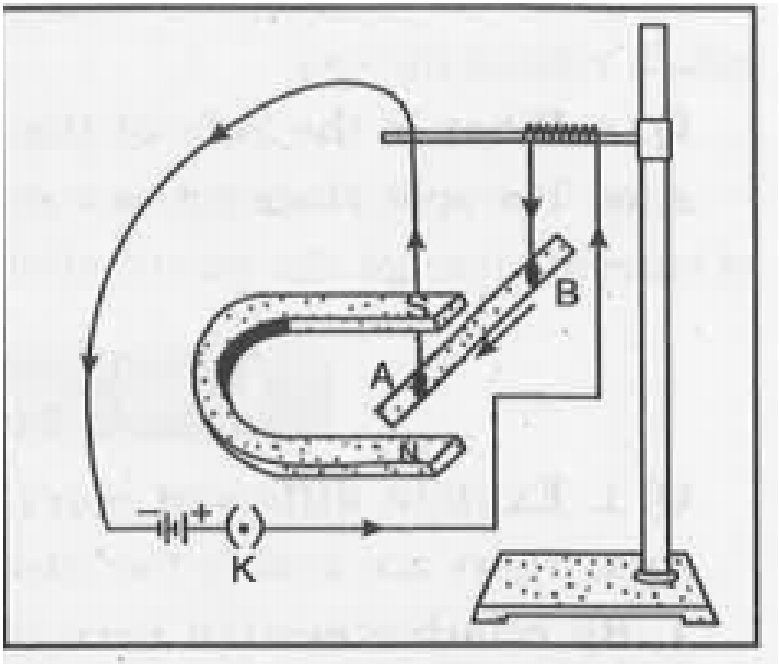
11. In activity shown,how do you think the displacKHOent of rod AB will be affected :Length of the rod AB is increased



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12. A positively charged particle projected towards west is deflected towards north by a magnetic field. The direction of the magnetic field is

A. towards south

B. towards east

C. downward

D. upward

Answer:

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Watch Video Solution

13. State Fleming's left-hand rule.

Watch Video Solution

14. What is the role of the split-ring in an electric motor?

Watch Video Solution

15. Explain different ways to induce current in a coil.

Watch Video Solution

16. State the principle of an electric generator.

Watch Video Solution

17. Name some sources of direct current.

Watch Video Solution

18. Which sources produce alternating current?

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19. Choose the correct option:

A rectangular coil of copper wires is rotated in a magnetic field. The direction of the induced current changes once in each:

A. two revolutions,

B. one revolution

C. half revolution,

D. one-fourth revolution

Answer:

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20. Name two safety measures commonly used in electric circuits and appliances.

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21. An electric oven of a $2kW$ power rating is operated in a domestic circuit (220 V) that has a current rating of 5A. What results do you expect? Explain.

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22. What precaution should be taken to avoid the overloading of domestic electric circuits?

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23. Which of the following correctly describes the magnetic field near a long straight wire?

A. The field consists of:Straight lines perpendicular to the wire

B. Straight lines parallel to the wire

C. Radial lines originating from the wire

D. Radial lines originating from the wire

Answer:

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24. The phenomenon of electromagnetic induction is :

A. the process of charging a body

B. The process of generating magnetic field due to a current passing through a coil.

C. Producing induced current in a coil due to relative motion between a magnet and the coil

D. The process of roatating the coil of an electric motor.

Answer:

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25. The device used for producing electric current is called a:

A. generator

B. galvanometer

C. ammeter

D. motor

Answer:

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26. The essential difference between an AC generator and a DC generator is that:

A. AC generator has an electromagnet while a DC generator has a permanent

magnet

B. DC generator will generate higher voltage.

C. AC generator will generate higher voltage.

D. AC generator has slip rings while the DC generator has a commutator.

Answer:

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27. At the time of short circuit, the current in the circuit :

A. reduces substantily

B. does not chagne

C. increase heavily

D. vary continuously.

Answer:

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28. State whether the following statement is true or false :

An electric motor converts mechanical energy into electrical energy.

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29. List three sources of magnetic fields.

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30. How does a solenoid behave like a magnet? Can you determine the north and south poles of a current carrying solenoid with a help of bar magnet? Explain.

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31. When is the force experienced by a current-carrying conductor placed in a magnetic field is largest?

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32. Imagine you are sitting in a chamber with your back to one wall. An electron beam, moving horizontally from back wall towards the from wall, is deflected by a strong magnetic field to your right side. What is the direction of the magnetic field?

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33. Draw a labelled diagram of an electric motor. Explain its principle and working. What

is the function of a split-ring in an electric motor?

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34. Name some devices in which electric motors are used.

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35. A coil of insulated copper wire is connected to a galvanometer. What would happen if a

bar magnet is pushed into the coil?

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36. A coil of insulated copper wire is connected to a galvanometer. What would happen if a bar magnet is withdrawn from Side the coil?

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37. A coil of insulate copper wire is connected to a galvanometer. What will happen if a bar

magnet is (i) pushed into the coil, (ii) withdrawn from inside the coil, (iii) held stationary inside the coil ?

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38. Two circular coils A and B are placed close to each other. If the current in the coil A is changed, will some current be induced in the coil B? Give reason.

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39. When does an electric short-circuit occur?

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40. What is the function of an earth wire? Why is it necessary to earth metallic appliances?

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41. In case of a solenoid, the strength of magnetic field depends upon

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42. What is an electromagnet?upon what factors its strength depends?

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43. The circulating induced current produced in a metal plate due to the change in magnetic flux are

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44. What do you understand by magnetic effect of current? To understand this effect give oersted experiment

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45. What is magnetic field? Give important properties of magnetic field lines.

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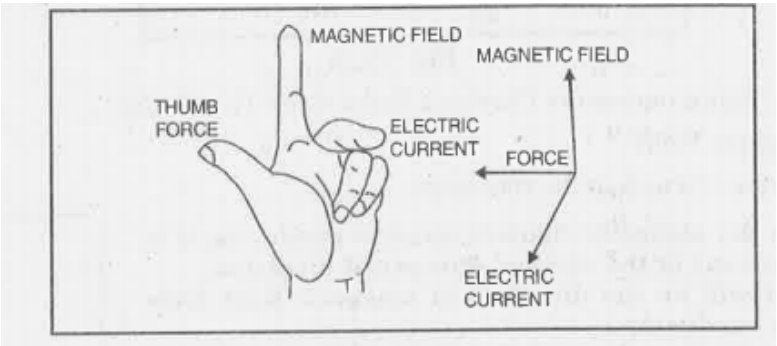
46. Which rule is shown in the figure?Define the rule in which device this rule is used?



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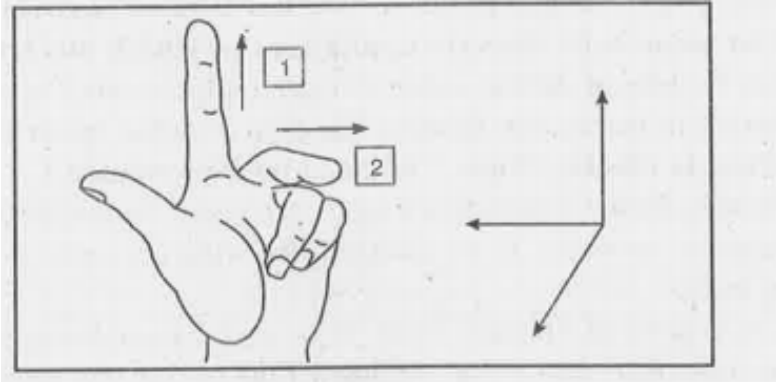
47. In the figure which law is shown?lablel 1 and 2 in relation to the law shown.



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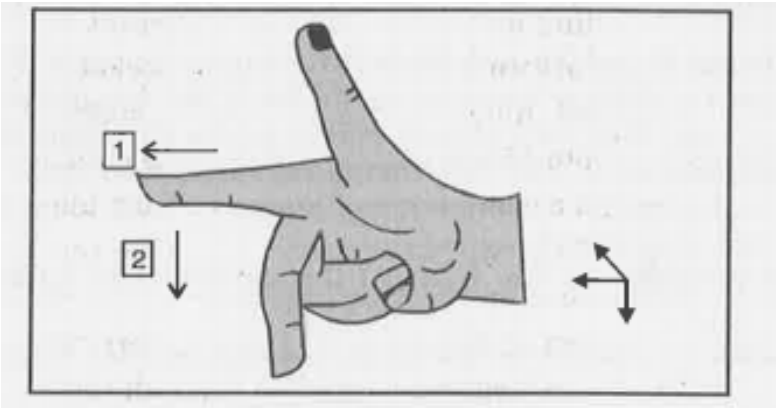
48. Name the law shown in the figure lable 1 and 2 according to this law.



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49. In the alongside figure a straight conductor B is carrying current in the vertical downward direction.

What will be the direction of magnetic field lines around the conductor?

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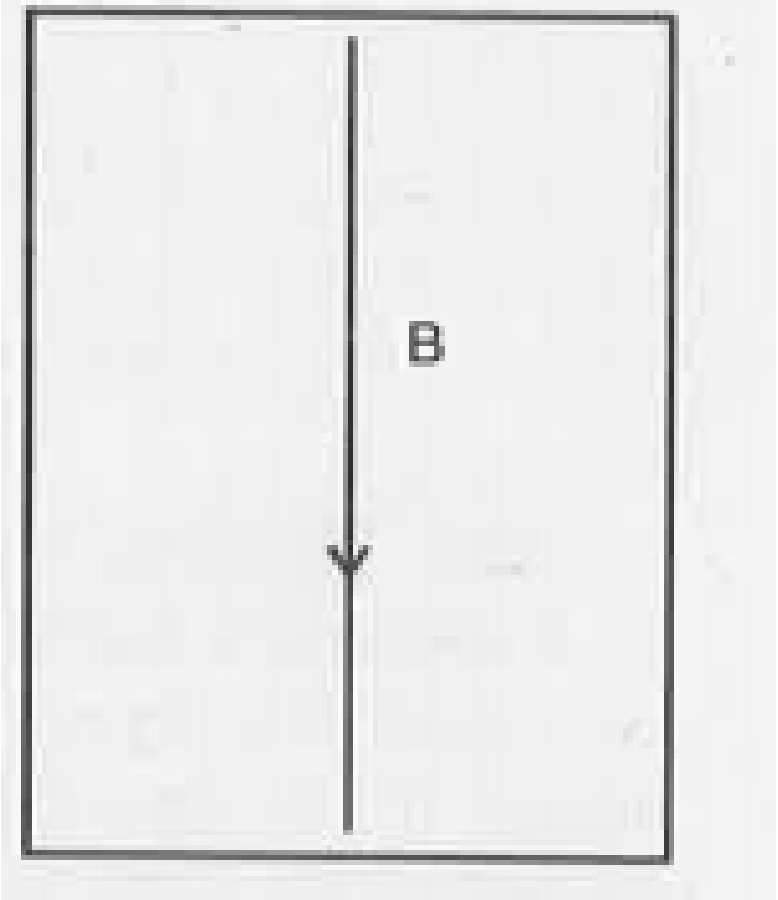
50. In the alongside figure a straight conductor B is carrying current in the vertical downward direction. What will be the direction of magnetic field lines around the

conductor?



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51. What is electro-magnetic induction?

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52. List some such electric applicances in which electric motor is used.

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53. What is electric fuse?What is its imnportant?

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54. Why the fuse wire should have high resistance and low metling point?

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55. What is meant by over-loading?

Watch Video Solution

56. When does an electric short-circuit occur?

Watch Video Solution

57. What are hazards of electricity?

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58. A dynamo

Watch Video Solution

59. On what principle is a.c.motor based?

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60. What is electric motor ?

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61. List three sources of magnetic fields.

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62. Name the physical qanitity whose S.I. unit is weber $/ m^2$.

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63. Inside a bar magnetic the magnetic field lines

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64. Name some devices in which electric motors are used.

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65. Define an elelctromagnet

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66. Define the following terms.

Magnetic South Pole

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67. Name two electric devices which act on magnetic effect of electric current.

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68. What is an electric fuse? How does it function?

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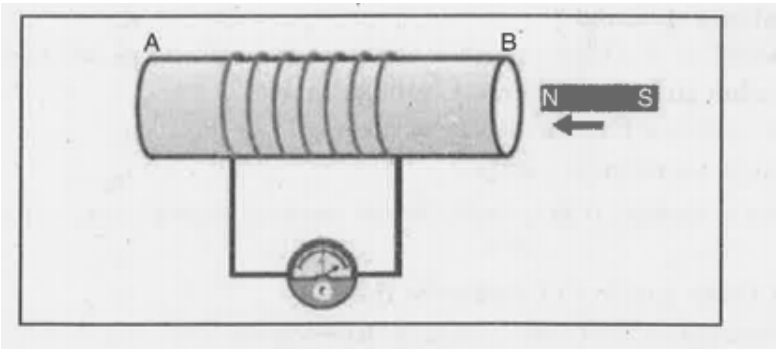
69. Which electrical phenomenon is responsible for deflection of galvonometer needle in the given figure?



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70. What is the colour of neutral wire in a domestic electric circuit?

A. black

B. red

C. green

D. no specific colour

Answer:

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71. Connecting metallic fram eof high power electrical appliances with the earth wire of doKHOstic circuit is called

A. overloading

B. short circuit

C. earthing

D. all of these

Answer:

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72. Name some sources of direct current.

A. dry cell

B. button cell

C. lead battery

D. all these

Answer:

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73. The device used for producing electric current is called a:

A. galvanometer

B. ammeter

C. motor

D.

Answer:

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74. Magentic field lines are.....

A. straight lines

B. curved

C. closed curves

D. traingular

Answer:

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