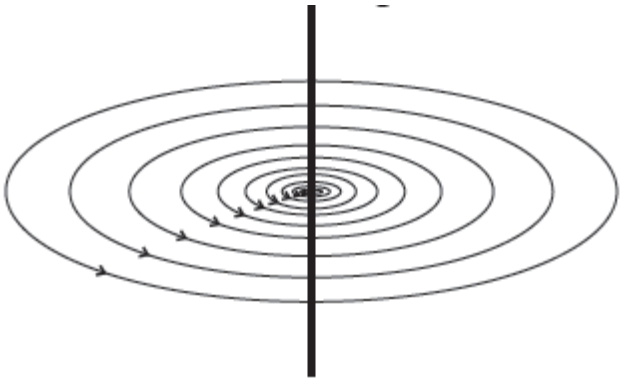
Roll No :
Date : 2025-12-24

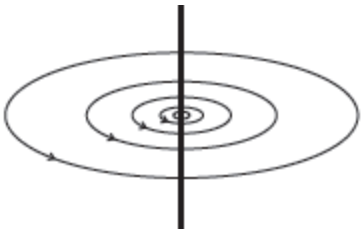
School : ACHIEVERS FOUNDATION
Assessment : Magnetic Effects of Electric Current MCQ
Subject : Physics
Class : CBSE -X

Time : 00:00
Marks: 96

1 The diagram below shows the magnetic field lines due to a current in a straight conductor. **1**



Something was done to the current because of which the magnetic field lines changed as shown below.



What was done to the current?

(a) Its magnitude was increased and its direction reversed.
(b) Its magnitude was decreased and its direction reversed.
(c) Its magnitude was increased.
(d) Its magnitude was decreased.

Ans :(d)

2 When a current flows through a straight conductor, a magnetic field is produced around it. Consider the following statements about this field: **1**
I. The direction of the magnetic field of a current carrying straight conductor is determined by right-hand thumb rule.
II. A charged body placed in this field experiences a force whose direction is given by Fleming's left hand rule.
III. The magnetic field lines around a current carrying straight conductor are in the form of concentric circles with the conductor as the centre.

The correct statement(s) is/are:

(a) I only

(b) III only

(c) I and II

(d) I and III

Ans :(d)

3 The strength of magnetic field around a current carrying conductor is **1**

(a) inversely proportional to the current but directly proportional to the square of the distance from wire.

(b) directly proportional to the current and inversely proportional to the distance from wire.

(c) directly proportional to the distance and inversely proportional to the current.

(d) directly proportional to the current but inversely proportional the square of the distance from wire.

Ans :

(b) • magnetic field strength increases on increasing the current through the wire.

• magnetic field strength decreases as the distance from the wire increases.

4 A current through a horizontal power line flows from south to North **1**
direction. The direction of magnetic field line 0.5 m above it is towards

(a) North

(b) South

(c) West

(d) East

Ans :(d) Apply right-hand thumb rule. It is from West to East.

5 Who has stated the Right hand Thumb Rule? **1**

(a) Orsted

(b) Fleming

(c) Einstein

(d) Maxwell

Ans :(d)

6 The magnetic field at a point due to current carrying conductor is directly proportional to **1**

(a) resistance of the conductor.
(b) current flowing through the conductor.
(c) voltage applied across the conductor.
(d) distance of the point from the conductor

Ans :(b)

7 Oersted experiment prove that when an electric current is passed through a conducting wire, a _____ is produced around it. **1**

(a) Electric field
(b) Magnetic field
(c) Heat
(d) Light

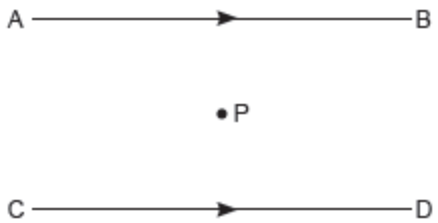
Ans :(b)

8 Suppose a horseshoe magnet is held vertically upwards with the North Pole is on left. A wire passing between the poles carries a direct current directed away from you. In what direction is the magnetic force exert on the wire? **1**

(a) Downward
(b) Upward
(c) Towards East
(d) Towards South

Ans :(a)

9 The resultant magnetic field at point 'P' situated midway between two parallel wires (placed horizontally) each carrying a steady current I is **1**



(a) in the same direction as the current in the wires.
(b) in the vertically upward direction.
(c) zero
(d) in the vertically downward direction.

Ans :(c) Use Right Hand Thumb rule.

10 Every section of the current carrying circular loop contributes to the magnetic field lines within the loop is in the **1**

(a) same direction

(b) opposite direction

(c) into the page

(d) out of the page

Ans :(a)

11 If the radius of a current carrying circular loop is doubled keeping all other factors remain same, then the magnetic field at the centre of the loop becomes **1**

(a) remains same

(b) twice the original

(c) half the original

(d) thrice the original

Ans :(c)

12 Current flows in a circular loop appears to be anticlockwise, the magnetic polarity of that face is **1**

(a) East

(b) West

(c) North

(d) South

Ans :(c)

13 Which of the following correctly describes the magnetic field lines within the current carrying circular loop? **1**

(a) Outwards magnetic field.

(b) Converging magnetic field lines as we move away from the centre of the loop.

(c) Diverging magnetic field lines as we move away from the centre of the loop.

(d) All of the above.

Ans :(c)

14 Magnetic field produced by a current carrying circular wire at its centre is **1**

(a) directly proportional to the current flowing through it.

(b) directly proportional to the number of turns of the coil.
(c) inversely proportional to radius of the coil.
(d) all of the above.

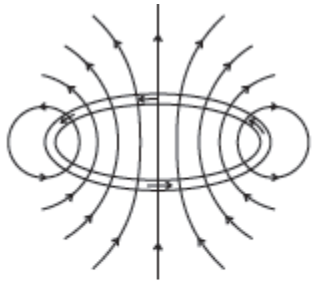
Ans :(d)

15 The figure shows the magnetic field caused by a current carrying conductor which is **1**
(a) straight conductor
(b) a solenoid
(c) a circular coil
(d) all of these

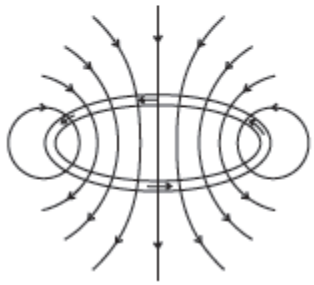
Ans :(c)

16 If the current is flowing anti-clockwise in a circular loop then the direction of magnetic field inside the loop is correctly represent by which of the following figure? **1**

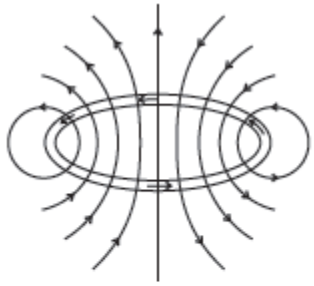
(a)



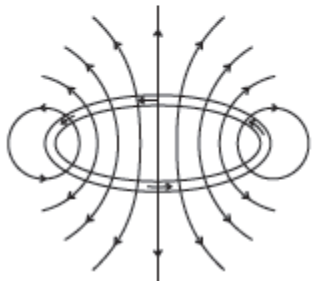
(b)



(c)



(d)



Ans :(a)

17 The strength of magnetic field of a current carrying solenoid is **1**
(a) minimum at its ends
(b) uniform inside it at all points
(c) maximum at its centre
(d) zero at its centre

Ans :(b)

18 What type of energy conversion is observed in a current carrying linear solenoid? **1**
(a) Mechanical to Magnetic
(b) Electrical to Magnetic
(c) Electrical to Mechanical
(d) Magnetic to Mechanical

Ans :(b)

19 What will happen if a soft iron bar is placed inside the solenoid? **1**
(a) The bar will be electrocuted resulting in short circuit.
(b) The bar will be magnetised as long as there is current in the circuit.
(c) The bar will be magnetised permanently.
(d) The bar will not be affected by any means.

Ans :(b)

20 The magnetic field lines produced inside the solenoid are similar to that of _____ **1**
(a) a bar magnet
(b) a straight current carrying conductor
(c) a circular current carrying loop
(d) electromagnet of any shape

Ans :(a)

21 Polarity of a current carrying solenoid can be determined by **1**
(a) use of compass needle
(b) Right hand thumb rule
(c) Fleming left hand rule
(d) either (a) or (b)

Ans :(d) both (a) and (b) can be use to determine the polarity of solenoid.

22 The factors on which one magnetic field strength produced by current carrying solenoids depends are **1**

(a) magnitude of current

(b) number of turns

(c) nature of core material

(d) all of the above

Ans :(d) Factors given in (a), (b) and (c).

23 A soft iron bar is introduced inside the current carrying solenoid. The magnetic field inside the solenoid **1**

(a) will decrease

(b) will remains same

(c) will increase

(d) will become zero

Ans :

(c) Soft iron inside the current carrying solenoid act as an electromagnet.

24 If the direction of current in a solenoid, when viewed from a particular end, is clockwise, then this end of the solenoid will be: **1**

(a) North pole

(b) East pole

(c) West pole

(d) South pole

Ans :(d)

25 The front face towards the observer of a current carrying solenoid behaves like a north pole. The direction of current in this face is **1**

(a) clockwise

(b) anticlockwise

(c) upwards

(d) downwards

Ans :(b)

26 The pattern of magnetic field lines around a current carrying solenoids resemble with the pattern of magnetic field lines **1**

(a) around current carrying straight conductor.
(b) around a bar magnet.
(c) by a current carrying circular coil.
(d) between two magnets facing like poles one-another.

Ans :(b)

27 The important features(s) of magnetic field inside the current carrying solenoid is/are **1**

(a) highly uniform.
(b) same in strength at all points.
(c) in the same direction at all points.
(d) all of the above.

Ans :(d)

28 Which one of the following would not experience a force while moving perpendicular to a uniform magnetic field? **1**

(a) A neutron
(b) An alpha particle
(c) An electron
(d) A proton

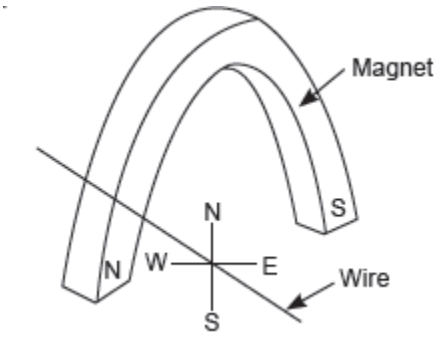
Ans :(a)

29 The direction of force acting on current carrying conductor in external magnetic field is given by **1**

(a) right hand thumb rule
(b) Fleming's left hand rule
(c) Fleming's right hand rule
(d) Maxwell's cork screw rule

Ans :(b)

30 A copper wire is held between the poles of a magnet. **1**



The current in the wire can be reversed. The pole of the magnet can also be changed over. In how many of the four directions shown can the force act on the wire?

(a) 1
(b) 2
(c) 3
(d) 4

Ans :(b) 2 (Either North or South)

31 The force acting on conductor is directly proportional to **1**

(a) strength of external field
(b) strength of electric current
(c) length of conductor
(d) all of these

Ans :(d)

32 The maximum force is exerted on the conductor when angle between its direction and that of magnetic field is **1**

(a) 0°
(b) 45°
(c) 90°
(d) 180°

Ans :(a)

33 A device based on principle of force acting on a current carrying conductor in external magnetic field is **1**

(a) electric motor
(b) electric generator
(c) fuse wire
(d) earth wire

Ans :(a)

34 A current carrying wire has no tendency to rotate in a magnetic field what does it mean? **1**

(a) wire is parallel to direction of magnetic field.

(b) wire is perpendicular to direction of magnetic field.

(c) wire is having very strong current flowing through it.

(d) magnetic field is very strong.

Ans :(a)

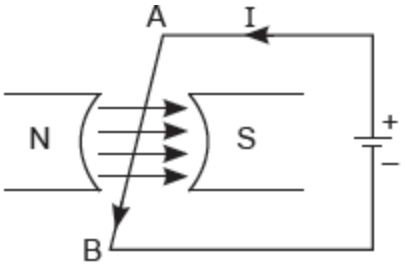
35 Based on the diagram, choose the direction of force that act on the current carrying conductor AB: **1**

(a) upwards

(b) downwards

(c) towards east

(d) towards south



Ans :(a)

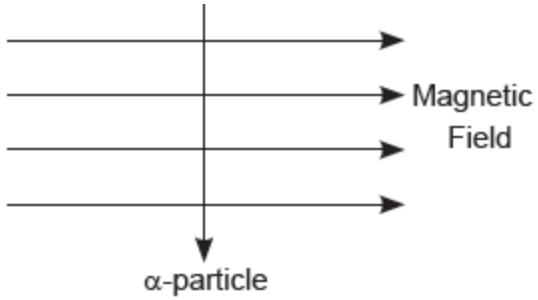
36An alpha particle enters a uniform magnetic field as shown. The direction of force experienced by the alpha particle is: **1**

(a) towards right

(b) towards left

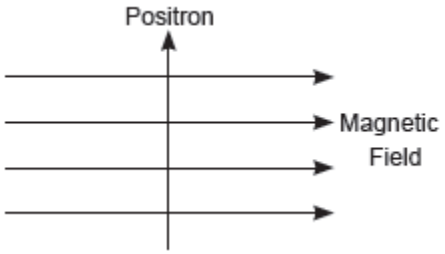
(c) into the page

(d) out of the page



Ans :(d) out of the page

37A positron enters a uniform magnetic field at right angles to it as shown. The direction of force experienced by the positron will be **1**



(a) to the right
(b) to the left
(c) into the page
(d) out of the page

Ans :(c) into the page

38 At the time of short circuit, the electric current in the circuit **1**
(a) vary continuously
(b) does not change
(c) reduces substantially
(d) increases heavily

Ans :(d)

39 The most important safety method used for protecting home appliances from short circuiting or overloading is **1**
(a) earthing
(b) use of fuse
(c) use of stabilizers
(d) use of electric meter

Ans :
(b) It is most important method for protecting the electrical devices from short circuiting or overloading by stopping the flow of any large electric current exceeds from its rating.

40 Earth wire carries **1**
(a) current
(b) voltage
(c) no current
(d) heat

Ans :(c) Earth wire carries no current.

41 The metallic body of electrical appliances are connected to the earth wire. For the current, this will provide **1**

(a) a low-resistance conducting path.
(b) a high-resistance insulating path.
(c) a medium resistance conducting path.
(d) a closed zero resistance insulating path.

Ans :(a)

42 The potential difference between the live wire and neutral wire in our country is **1**
(a) 110 V
(b) 220 V
(c) 300 V
(d) 50 V

Ans :(b)

43 The user of electrical appliances may not get a severe electric shock due to **1**
(a) touching the appliances with bare foot
(b) absence of fuse wire
(c) earthing of appliances
(d) short circuit

Ans :(c)

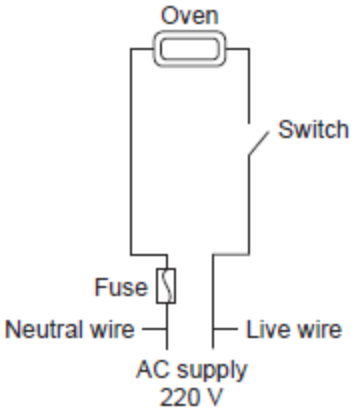
44 Which type of current rating supply is required in our country for the electrical devices such as geysers, air conditioners, room heaters etc? **1**
(a) 220 V, 5 A
(b) 110 V, 5 A
(c) 220 V, 15 A
(d) 110 V, 15 A

Ans :(c)

45 In domestic electric circuits the wiring with 15 A current rating is for the electric devices which have **1**
(a) higher power ratings such as geyser.
(b) lower power ratings such as fan.
(c) metallic bodies and low power ratings.
(d) non-metallic bodies and low power ratings.

Ans :(a)

46(a) In the circuit below, in case of an overload, will the fuse protect the electric oven from damage? Justify your answer. **1**



(b) If the oven has a rating of 13 A, what should be the minimum rating of the fuse?

Ans :

(a) • No

• The fuse will blow only after current has passed through the oven and damaged it.

(b) A little above 13 A, i.e., 14 A, 15 A.

47 The instrument that use to detect electric current in the circuit is known as **1**

(a) electric motor

(b) A.C generator

(c) galvanometer

(d) none of these

Ans :

(a) A galvanometer is an instrument that can direct the presence of current in a circuit.

48 Magnetic effect of current was discovered by **1**

(a) Oersted (b) Faraday

(c) Bohr (d) Ampere

Ans :

(a) Oersted showed that electricity and magnetism were related phenomena.

49 Inside the magnet, the field lines moves **1**

(a) from north to south

(b) from south the north

(c) away from south pole
(d) away from north pole

Ans :
(a) Magnetic field inside the magnet moves from south to north pole.

50 Relative strength of magnetic field at a point in the space surrounding the magnet is shown by the **1**
(a) length of magnet
(b) thickness of magnet
(c) degree of closeness of the field.
(d) resistance offered by the surroundings

Ans :
(a) The force acting on the pole of another magnet by the crowded magnetic field lines is greater.

51 Which of the following statement is not correct about the magnetic field? **1**
(a) Magnetic field lines form a continuous closed curve.
(b) Magnetic field line do not interest each other.
(c) Direction of tangent at any point on the magnetic field line curve gives the direction of magnetic field at that point.
(d) Outside the magnet, magnetic field lines go from South to North pole of the magnet.

Ans :
(d) Outside the magnet, magnetic field line emerges from North-pole and moves towards south-pole.

52 By which instrument, the presence of magnetic field be determined? **1**
(a) Magnetic Needle (b) Ammeter
(c) Galvanometer (d) Voltmeter

Ans :
(a) With the help of magnetic field, one can find the presence of magnetic field in a region by observing its deflection.

53 The pattern of the magnetic field produced by the straight current carrying conducting wire is **1**
(a) in the direction opposite to the current
(b) in the direction parallel to the wire

(c) circular around the wire
(d) in the same direction of current

Ans :
(c) Magnetic field line around a current carrying straight conductor is represented by concentric circles.

54 The nature of magnetic field line passing through the centre of current carrying circular loop is **1**
(a) circular (b) ellipse
(c) parabolic (d) straight line

Ans :
(d) magnetic field line at the centre of current carrying loop appears as a straight line.

55 The strength of each of magnet reduces to half when it cut along its length into the equal parts magnetic field strength of a solenoid. Polarity of solenoid can be determined by **1**
(a) use of compass needle
(b) Right hand thumb rule
(c) fleming left hand rule
(d) either (a) or (b)

Ans :(d) both (a) and (b) can be use to determine the polarity of solenoid.

56 The factors on which one magnetic field strength produced by current carrying solenoids depends are **1**
(a) Magnitude of current
(b) Number of turns
(c) Nature of core material
(d) All of the above

Ans :(d) Factors shown in (a), (b) and (c).

57 A soft iron bar is introduced inside the current carrying solenoid. The magnetic field inside the solenoid **1**
(a) will decrease
(b) will remains same
(c) will increase
(d) will become zero

Ans :

(c) Soft iron inside the current carrying solenoid act as an electromagnet.

58 When current is parallel to magnetic field, then force experience by the current carrying conductor placed in uniform magnetic field is **1**

(a) Twice to that when angle is 60°
(b) Thrice to that when angle is 60°
(c) zero
(d) infinite

Ans :
(a) If the current direction is parallel to the magnetic field, then there will no force on the conductor exerted by the magnetic field.

59 A positive charge is moving upwards in a magnetic field directed towards north. The particle will be deflected towards **1**

(a) west (b) north
(c) south (d) east

Ans :(a) Apply fleming's left hand rule

60 Which of the following factors affect the strength of force experience by a current carrying conduct in a uniform magnetic field? **1**

(a) magnetic field strength
(b) magnitude of current in a conductor
(c) length of the conductor within magnetic field
(d) All of above.

Ans :(d) All the factors affect the strength of magnetic force.

61 Direction of rotation of a coil in electric motor is determined by **1**

(a) fleming's right hand rule
(b) fleming's left hand rule
(c) faraday law of electromagnetic inductors
(d) None of above

Ans :(b) Fleming's left hand rule.

62 In electric motor, to make the coil rotating continuously in the same direction, current is reversed in the coil after every half rotation by a device called **1**

(a) carbon brush (b) commutator
(c) slip ring (d) armature

Ans :

(b) A device that reverses the direction of current in the arms of armature through a circuit is called commutation.

63 The condition for the praenomen of electromagnetic induction is that there must be a relative motion between **1**

(a) the galvanometer and magnet
(b) the coil of wire and galvanometer
(c) the coil of wire and magnet
(d) the magnet and galvanometer

Ans :

(c) The relative motion between the magnet and coil of wire causes change in magnetic field lines linked with the coil to produces induced current if the circuit is closed.

64 The instrument that use to defect electric current in the circuit is known as **1**

(a) electric motor
(b) A.C generator
(c) galvanometer
(d) none of the above

Ans :

(a) A galvanometer is an instrument that can direct the presence of current in a circuit.

65 We can induce the current in a coil by **1**

(a) moving the coil in a magnetic field
(b) by changing the magnetic field around it
(c) by changing the orientation of the coil in the magnetic field
(d) All of above

Ans :

(a) The method can be used to induce the potential difference across the ends of a coil and hence induce current.

66 A magnet is moved towards a coil (i) quickly (ii) slowly. The induced potential difference **1**

(a) more in (i) than in (ii) case
(b) more in (ii) than in (i) case
(c) same in both
(d) can't say

Ans :
(a) When magnet is moved quickly, more will be the changing magnetic field strength and hence larger is the induced potential difference.

67 A.C generator works on the principle of **1**
(a) force experience by a conductor in magnetic field
(b) electromagnetic induction
(c) electrostatic
(d) force experience by a charge particle in electric field.

Ans :(a) Generator works on principle of electromagnetic induction

68 Fleming's left hand and Right hand rules are used in **1**
(a) Generator and electric motor
(b) Electric motor and generator
(c) any rule can be used for any device
(d) both are not applied for generator and motor.

Ans :
(b) Electric motor employs Fleming left hand rule while for generator, Fleming right-hand rule is used.

69 A D.C generator works on the principle of **1**
(a) ohnis law
(b) Joule's law of heating
(c) faraday's law of electromagnetic induction.
(d) none of the above

Ans :
(c) electric generator works on the basis of electromagnetic induction.

70 If the current values periodically from zero to a maximum value, back to zero and then reverses its direction, the current is **1**
(a) direct
(b) alternative
(c) pulsating
(d) none of the above

Ans :(b) The alternating current reverse its direction periodically.

71 The main advantage of A.C power transmission over D.C power transmission over long distance is **1**
(a) AC transmit without much loss of energy

(b) less insulation problem
(c) less problem of instability
(d) easy transformation.

Ans :
(a) AC transmit over a long distance without much loss of energy as compare to DC.

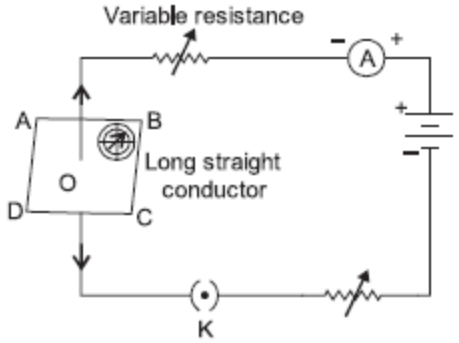
72 Which among of these are the main characteristics of fuse element? **1**
(a) High conductivity
(b) low melting point
(c) do not burn due to oxidation
(d) All of the above

Ans :
(d) Fuse wire must have all the characteristic to prevent from a possible damage.

73 Overloading is due to **1**
(a) Insulation of wire is damaged
(b) fault in the appliances
(c) accidental hike in supply voltage
(d) All of the above

Ans :(d) All are the causes to occur overloading

74 If the key in the given arrangement is taken out (the circuit is made open) and magnetic field lines are drawn over the horizontal plane ABCD, the lines are **1**



(a) concentric circles
(b) elliptical in shape
(c) straight lines parallel to each other
(d) concentric circles near the point O but of elliptical shapes as we go away from it

Ans :

(a) Magnetic field lines around a straight current carrying conductor are in the form of concentric circle.

75 For a current in a long straight solenoid N-pole and S-pole are created at the two ends. Among the following statements, the incorrect statement is **1**

(a) The field lines inside the solenoid are in the form of straight lines which indicates that the magnetic field is the same at all points inside the solenoid.

(b) The strong magnetic field produced inside the solenoid can be used to magnetise a piece of magnetic material like soft iron, when placed inside the coil.

(c) The pattern of the magnetic field associated with the solenoid is different from the pattern of the magnetic field around a bar magnet.

(d) The N-pole and S-pole exchange position when the direction of current through the solenoid is reversed.

Ans :

(c) A solenoid behaves like a bar magnet. Hence the pattern of magnetic field associated with solenoid and around the bar magnet is same.

76 Commercial electric motors do not use **1**

(a) an electromagnet to rotate the armature

(b) effectively large number of turns of conducting wire in the current carrying coil

(c) a permanent magnet to rotate the armature

(d) a soft iron core on which the coil is wound

Ans :

(c) Using electromagnet, the magnetic field strength further increase by increasing the current. Hence it will enhance the power of electric.

77 The strength of magnetic field inside a long current carrying straight solenoid is **1**

(a) more at the ends than at the centre

(b) minimum in the middle

(c) same at all points

(d) found to increase from one end to the other

Ans :

(c) A current carrying solenoid produces a uniform magnetic field inside it.

78 To convert an AC generator into DC generator **1**
(a) split-ring type commutator must be used
(b) slip rings and brushes must be used
(c) a stronger magnetic field has to be used
(d) a rectangular wire loop has to be used

Ans :
(a) To connect AC generator into DC generator, split ring type commutation must be used to get a unidirectional direct current.

79 What should be the core of an electromagnet? **1**
(a) soft iron (b) hard iron
(c) rusted iron (d) none of above

Ans :(a) soft iron

80 What is that instrument which can detect the presence of electric current in a circuit? **1**
(a) galvanometer (b) motor
(c) generator (d) none of above

Ans :(a) galvanometer

81 Which device produces the electric current? **1**
(a) generator (b) galvanometer
(c) ammeter (d) motor

Ans :(a) generator

82 The needle of magnetic compass indicates the direction of **1**
(a) magnetic north at the point of earth surface.
(b) magnetic south at the point of earth surface.
(c) east.
(d) west.

Ans :(a)

83 A compass needle is a/an **1**
(a) iron piece
(b) small magnet
(c) steel bar

(d) powerful bar magnet

Ans :(b)

84 The behaviour of compass needle in a magnetic field is **1**

(a) to assure a position of magnetic field line.

(b) to assure the perpendicular magnetic field line.

(c) to rotate and stops in any direction.

(d) both (b) and (c)

Ans :(a)

85 Magnetic field is a quantity that has **1**

(a) magnitude only

(b) direction only

(c) both direction and magnitude

(d) none of the above

Ans : (c)

86 Magnetic needle is/an **1**

(a) isolated north pole pivoted at its centre of mass.

(b) isolated south pole pivoted at its centre of mass.

(c) ordinary needle made of soft iron and pivoted at its centre of mass.

(d) small bar magnet pivoted at its centre of mass.

Ans :(d)

87 A freely suspended magnet always rests in geographically north and south direction because **1**

(a) the Earth has two poles.

(b) the Earth behaves as a huge magnet.

(c) the magnetic north pole of the Earth magnet islocated very close to its south pole.

(d) the magnetic south pole of the Earth magnet is located very close to its south pole.

Ans :

88 No two field lines are found to intersect each other. If they intersect, then at the point of intersection, the compass needle would point **1**

(a) in two different directions which is possible.

(b) in two different directions which is not possible.

(c) in a particular direction.

(d) nowhere

Ans :(b)

89 After drawing the magnetic field lines around the bar magnet with the help of a compass needle, a student writes the following statements: **1**

I. Symmetrical magnetic field lines pattern is obtained on both the sides of bar magnet.

II. The field lines around the bar magnet follow the pattern of iron filling around the magnet.

III. Deflection increases as the needle is moved towards the pole of a bar magnet.

IV. At the poles of a bar magnet, opposite poles of a compass needle comes to rest.

Choose which of the following would be correct statement(s).

(a) only III and IV

(b) I, III and IV

(c) I, II and III

(d) All four statements

Ans :(d)

90 Equidistance parallel magnetic field lines indicate: **1**

(a) Uniform magnetic field.

(b) Non-uniform magnetic field.

(c) Both (a) and (b).

(d) Uniform electric field

Ans :(a)

91 How can you find the direction of magnetic field from a magnetic field line? **1**

(a) Perpendicular to the tangent drawn at that point.

(b) Along the tangent at any point of the field line.

(c) Along parallel to the field line.

(d) Using Right Hand Thumb rule.

Ans :(b)

92 A piece of material that has both attractive and directive properties is called _____. **1**

(a) magnet

(b) iron fillings

(c) resistor

(d) coil (inductor)

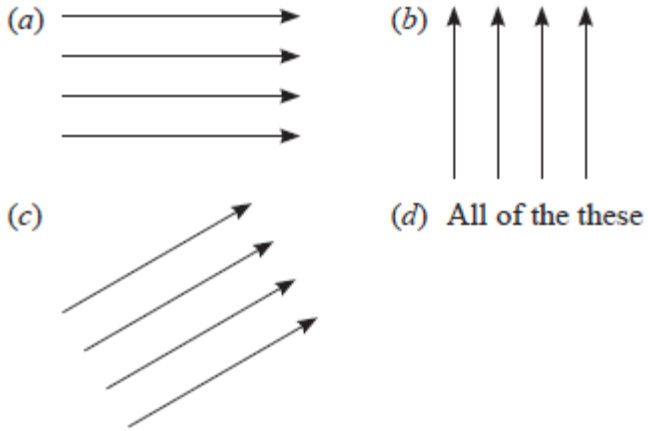
Ans :(a)

93 A bar magnet is cut into two pieces along its length. Which of the following statement is true? **1**

(a) Two new bar magnets are created with half of pole strength.
(b) Two new bar magnets are created with double pole strength
(c) Bar magnet is demagnetized.
(d) The one part created magnetic field while other created electric field.

Ans :(a)

94 Which of the following diagram indicating an uniform magnetic field? **1**



Ans :(b)

95 Right hand thumb rule is used to determine the **1**

(a) direction of magnetic field.
(b) strength of magnetic field.
(c) direction of magnetic force.
(d) direction of induced current.

Ans :(a)

96 Which of the following process will produce new magnetic poles? **1**

(a) Cutting a bar magnet in two pieces.
(b) Current through a solenoid.
(c) Placing an iron needle in contact with a magnet.
(d) All of the above.

Ans :(d)