

QB365

Important Questions - Magnetic Effects of Electric Current

10th Standard CBSE

Science

Reg.No. :

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Time : 01:00:00 Hrs

Total Marks : 50

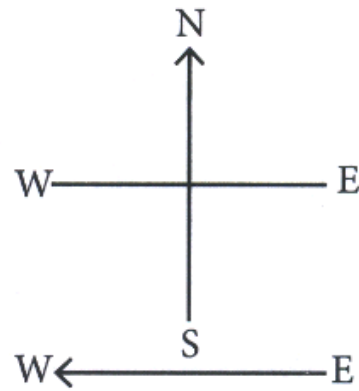
Section - A

- 1) A positively-charged particle (alpha-particle) projected towards west is deflected towards north by a magnetic field. The direction of magnetic field is **1**
 - (a) towards south
 - (b) towards east
 - (c) downward
 - (d) upward
- 2) The essential difference between an AC generator and a DC generator is that **1**
 - (a) AC generator has an electromagnet while a DC generator has permanent magnet.
 - (b) DC generator will generate a higher voltage.
 - (c) AC generator will generate a higher voltage
 - (d) AC generator has slip rings while the DC generator has a commutator.
- 3) At the time of short circuit, the current in the circuit **1**
 - (a) reduces substantially
 - (b) does not change
 - (c) increases heavily
 - (d) vary continuously
- 4) 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
- 5) 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 has to be used.

6) A constant current flows in a horizontal wire in the plane of the paper from east to west as shown in figure. The

1

direction of magnetic field at a point will be North to South



- (a) Directly above the wire
- (b) directly below the wire
- (c) At a point located in the plane of the paper, on the north side of the wire
- (d) At a point located in the plane of the paper, on the south side of the wire.

7) Name the device that converts electric energy into mechanical energy.

1

8) What is the difference between AC generator and DC generator?

1

9) What is similar between solenoid and bar magnet?

1

10) Name the scientist who discovered magnetic effects of current.

1

Section - B

11) What is the principle of an electric motor ?

2

12) State whether the following statements are true or false.

2

- (a) An electric motor converts mechanical energy into electrical energy.
- (b) An electric generator works on the principle of electromagnetic induction.
- (c) The field at the centre of a long circular coil carrying current will be parallel straight lines.
- (d) A wire with a green insulation is usually the live wire of an electric supply.

13) List three methods of producing magnetic field.

2

14) State the rule to determine the direction of a

2

- (i) Magnetic field produced around a straight conductor-carrying current
- (ii) Force experienced by a current-carrying straight conductor placed in a magnetic field which is perpendicular to it.
- (iii) Current induced in a coil due to its rotation in a magnetic field.

15) What happens if a bar magnet is cut into two pieces:

2

- (a) Along its length.
- (b) Transverse to its length.

16) What is the role of the two conducting stationary brushes in a simple electric motor?

2

17) (a) What is the role of fuse, used in series with any electrical appliance?

2

(b) Why should a fuse with defined rating not be replaced by one with a larger rating?

18) Different between electric motor and generator.

2

19) Distinguish between an electric motor and generator?

2

20) Give the differences between an electromagnet and a permanent magnet.

2

Section - D

- 21) With the help of a labelled circuit diagram illustrate the pattern of field lines of the magnetic field around a current carrying straight long conducting wire. How is the right hand thumb rule useful to find direction of magnetic field associated with a current carrying conductor? **5**
- 22) Draw an appropriate schematic diagram showing common domestic circuits and discuss the importance of fuse. Why is it that a burnt out fuse should be replaced by another fuse of identical rating? **5**
- 23) (a) What is meant by a 'magnetic field'? **5**
(b) How is the direction of magnetic field at a point determined?
(c) Describe an activity to demonstrate the direction of the magnetic field generated around a current carrying conductor.
(d) What is the direction of magnetic field at the centre of a current carrying circular loop?
- 24) (a) What is an electromagnet? What does it consist of? **5**
(b) Name one material in each case which is used to make a
(i) Permanent magnet
(ii) Temporary magnet
(c) Describe an activity to show how you can make an electromagnet in your school laboratory.

