The Brigade School@ G and W

Total points 16.5/20

Class 10 Physics Marks 20

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TBSG

Class: *

10 A

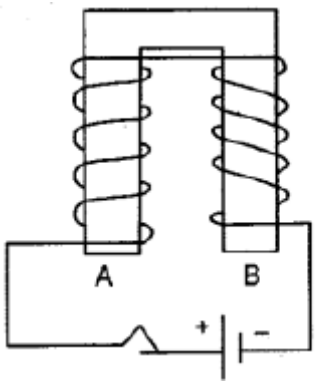
✓ 1. State ant two advantages of electromagnet over permanent magnet. * 2/2

~ Electromagnet produces a strong magnetic field.
~ The electromagnet's polarity or the direction produced by it can be reversed by reversing the direction of current in its solenoid.

Feedback

The strength of the electromagnet can be increased by increasing the number of turns of the coil
The polarity of the electromagnet can be reversed.

✗ 2. The diagram shows a coil wound around a U shaped iron bar AB. Is the winding on the horseshoe magnet correct. If yes what is the polarity induced at the ends A and B when the switch is closed? If not, identify and state the mistake in the winding. * 0/3



Yes, it is right.
A is south pole and B is north pole.

Feedback

The winding is incorrect as in both arms the winding or flow of current is in the same direction and hence same polarity has to develop in both arms which is not possible.

✓ 3. State two similarities and one difference between DC motor and AC generator * 3/3

Similarities ~ The coil rotates in a magnetic field between the pole pieces of a powerful electromagnet.
~ There is a transformation of energy from one form to another.
Difference ~ AC generator converts mechanical energy into electrical energy where as DC motor converts electrical energy to mechanical energy.

Feedback

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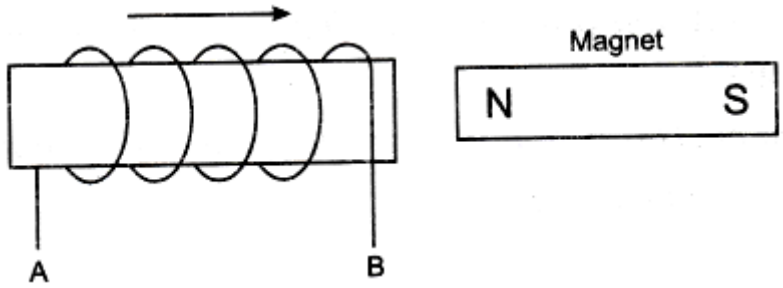
✓ 4. In the following diagram an arrow shows the direction of motion of a coil towards a magnet. (i) State the direction of current flow .[A to B or B to A]. (ii) Name and state the law used to come to the conclusion. * 3/3



(i) A to B
(ii) Lenz's Law - The direction of induced e.m.f is such that it opposes the cause which which produces it

Feedback

(i) Current flows from A to B as induced emf opposes motion so develops N polarity. (1)
(ii) Lenz's Law (1)- Lenz's law states that the direction of induced emf or induced current is such that it opposes the cause that produces it. (1)

✓ 5. State Fleming's Right hand rule. * 3/3

Stretching the thumb, central finger and forefinger of the right hand mutually perpendicular to each other, the forefinger indicates the direction of magnetic field and the thumb indicates the direction of motion of the conductor, then the central finger indicates direction of induced current.

Feedback

When the first three fingers of the right hand are stretched mutually perpendicular to each other and if the thumb points in the direction of motion of the conductor and the fore finger indicates the direction of the magnetic field then the direction induced current is indicated by the central finger.

✓ 6. (i) Draw a simple diagram of a DC motor. * 3/3

PDF dc - Manan Meht...

✗ 6 (ii) What is the role of the split rings in the dc motor? (iii) State the principle of the dc motor. (iv) If the dc motor is rotating in the clockwise direction, how can the direction of rotation be reversed. * 2.5/3

(ii)It reverses the direction of current in the coil.
(iii) The principle is that on passing electric current through conductor normal in a magnetic field, a force on a conductor acts as a result of which the conductor begins to move, thus, mechanical energy is obtained.
(iv) By interchanging the terminals of battery connected to brushes of motor.

Feedback

(ii) The split ring reverses the direction of the current in the coil every half turn and hence maintains the rotation of the coil in the same direction.
(iii) Electrical energy is converted into mechanical energy
(iv) By interchanging the connections at the terminals of the battery joined to the brushes
1 x 3