



Physics

Worksheet 2 : 13/08/2020

Class - X

CHAPTER 12 : MAGNETIC EFFECTS OF CURRENT**Instructions:**

- ✓ Read the chapter in your book - quickly and thoroughly, preferably more than once.
- ✓ Watch the uploaded video classes from school's website. For becoming more clear about the basics, watch more than once, if needed.

(Questions given in this worksheet are important questions for all exams)

- ✓ Learn the answers given in this worksheet.
- ✓ Contact me in case of any difficulties in understanding.

Cognitive Questions (Mark 1)**1. What is electric motor?**

Ans.: An electric motor is a motor which transforms electrical energy into mechanical energy.

2. What is generator?

Ans.: The machine which transforms mechanical energy into electrical energy is called generator.

Analytical Question (Mark-2)**1. Why motor is called the opposite instrument of generator?**

Ans.: Even though the structure of motor and a generator is same, since their type of work is different. So a motor is also called the opposite instrument of a generator. Motor changes electric energy to mechanical energy. On the other

hand, generator changes mechanical energy to electric energy. Again, motor is made by using the effect of magnetic field on a conducting wire. On the other hand, generator is made based on the law of electromagnetic induction.

2. Why electric motor is used in electric fan? - Explain.

Ans.: In an electric motor there is an armature capable of rotation which is surrounded by several turns of coil. This armature is placed inside a permanent magnet. When electricity is passed through the coil, the current passing through the coil creates a magnetic field. The armature rotates due to the interaction of this induced magnetic field and the magnetic field of the permanent magnet.

If this armature is connected to a shaft, it will also rotate. Several arms are then connected to the shaft to build electric fans. Thus electric fan rotates when electricity is supplied to the motor connected to it.

3. How can we increase induced current?

Ans.: Induced current can be increased in the following ways:

- i. Increasing the strength of magnet.
- ii. Increasing the number of turns of coil.
- iii. Moving the magnet more faster.

4. Why is electric current reduced for transmission of electricity over long distances?

Ans.: In case of transmitting electricity over long distances, electric current is reduced due to energy loss from heat and system loss of electricity. The more current flows in the lines used to send electricity over long distances, the more it heats up. This heat energy spreads to the surrounding air. Electricity is used and wasted to create heat energy. Besides, the more the lines heat up, their resistances increase as well. This is why electric current is reduced for transmission of electricity over long distances.

5. Why transformer is used in transmitting electricity?

Ans.: A transformer acts as a medium of step up or down voltage which is required to efficiently transfer electric power over long distances.. To transmit a fixed

amount of power at a higher voltage will give us less of current flowing through the transmission wires. At power station, step up transformers are used to produce very high voltage needed to transmit electricity through the national grid power lines. These high voltages are too dangerous to use in home, so step down transformers are used locally to reduce the voltage to safe levels. So transformers are used in transmitting electricity.

6. Which transformer is used for current flowing and why? Explain.

Ans.: Step up transformer is used for current flowing. Because this transformer converts the high potential less electric current into low potential high electric current. Since, in the residential areas, sufficient current is required at a low voltage. Step down transformer is used here for supplying current.