

PON VIDYASHRAM GROUP OF CBSE SCHOOLS

Class X Worksheet (2017-18)

PHYSICS-- Magnetic effects of current

I. Answer the following:

- 1) What is an electromagnet?
- 2) What is a solenoid?
- 3) What do you mean by induced current?
- 4) What do you understand by the term commutator?
- 5) In a domestic electric circuit mention the potential difference between live wire and neutral wire?
- 6) What kind of magnetic field is produced by a current carrying solenoid?
- 7) Why does a compass needle show deflection when brought near a bar magnet?
- 8) Why are magnetic field lines more crowded towards the pole of a magnet?
- 9) What are magnetic field lines?
- 10) Draw a diagram to represent a uniform magnetic field in a solenoid.
- 11) What type of current is used in household supply?
- 12) For same current flowing through a solenoid and a straight conductor, the magnetic field produced by a solenoid is much stronger than the magnetic field produced by a straight current carrying conductor. State one reason to justify this statement.
- 13) Why do we connect earth wire in a house? Give two reasons.
- 14) What is the difference between a direct current and an alternating current?
What is the frequency of AC current in India?
- 15) What is the role of fuse in any electrical appliance? Why should a fuse with defined rating not be replaced by one with a larger rating? List two characteristics of the material to be used in fuse wire. Name the material it is made up of.

- 16) Steel is not used for making core of an electromagnet. Give reason
- 17) Why can't two magnetic field lines cross (intersect) each other?
- 18) Compare the pattern of the magnetic field around a solenoid with the magnetic field around a bar magnet.
- 19) State the rule for finding the direction of the magnetic field produced around a current carrying conductor.
- 20) Mention the shape of the magnetic field lines around a current carrying straight conductor.
- 21) State Fleming's right hand rule. B) Fleming's left hand rule
- 22) Name and state the rule that helps to find the force on a current carrying conductor in a magnetic field.
- 23) Explain why electrical appliances are connected in parallel in household circuits.
- 24) (a) Name two electrical appliances of daily use in which electric motor is used.
(b) Name and state the principle on which an electric motor works.
- 25) A coil of insulated wire is connected to a galvanometer. What would be seen if a bar magnet with its south pole towards one face of the coil is:
(a) Moved quickly towards it?
(b) Moved quickly away from it?
(c) Placed near its once face?
(d) Name the phenomena involved.
- 26) Name the three types of wires used in household circuits. Out of these three which wire is used as a safety measure especially for those appliances that have metallic body? State the colour of insulation used for this wire. How it ensures the safety of the user?

II LONG ANSWER QUESTIONS:

- 27) Series arrangements are not used for domestic circuits. List any three reasons.
- 28) Draw the magnetic field lines (Including field directions) of the magnetic field due to a solenoid. Name any two factors on which the magnitude of the magnetic field due to this solenoid depends.
- 29) Draw an appropriate schematic diagram showing common domestic circuits and discuss the importance of fuse. Why a burnt-out fuse should be replaced by another fuse of identical rating?

30) Explain with a neat diagram the construction and working of:

a) Electric motor,

b) AC Generator.

c) DC Generator.

PHYSICS-WORKSHEET

Class X: Light-Reflection and Refraction

I. Answer the following:

1. What is light?
2. What is the speed of light in vacuum?
3. What is a mirror?
4. What is the focal length of a plane mirror?
5. Differentiate between real and virtual image.
6. Differentiate between concave and convex mirror.
7. What type of image is formed on a cinema screen?
8. A concave mirror is a part of sphere of radius 40 cm. What is the focal length of the mirror?
9. Radius of curvature of a mirror is 20 cm. What is its focal length?
10. Magnification of a mirror is -1 . What type of mirror is it? What is the position of object and image? Give the nature of image.
11. Name the type of mirror used and give reason:-
 - 1) As a reflector in search light
 1. by the dentist
 2. As side view mirror in vehicles.
 3. As a shaving mirror
 4. Headlights of a car

12. Solar furnace.
13. Wherever you may stand in front of mirror, your image is always erect & same sized, what type of mirror is it?
14. Define the principal focus of a concave mirror and convex mirror.
15. The magnification produced by a plane mirror is +1. What does this mean?
16. Draw ray diagrams showing the image formation by a convex mirror when an object is placed at infinity
17. Draw ray diagrams showing the image formation by a concave mirror when an object is placed
 - (a) between pole and focus of the mirror
 - (b) between focus and center of curvature of the mirror
 - (c) at center of curvature of the mirror
 - (d) at infinity

II Numerical

1. A small candle 2.5cm in size is placed 27cm in front of a concave mirror of radius of curvature 36cm. At what distance from the mirror should the screen be placed to obtain a sharp image? Describe the size and nature of image.
2. A concave mirror produces 3 times magnified real image of an object placed 10cm in front of it. Where is the image located?
3. An object of length 2.5cm is placed $1.5f$ from a concave mirror, where f is a magnitude of focal length of mirror. Find the length and nature of image.
4. Find the position of image when an object is placed at a distance of 20cm from a concave mirror of focal length 20cm.
5. At what distance from a concave mirror of focal length 10cm should an object 2cm long be placed in order to get an erect image 6cm tall?
