WORKSHEET 1

CHAPTER 2 – MAGNETIC EFFECTS OF ELECTRIC CURRENT

A. Tick (✓) the correct option.

1. A magnetic field line is used to find the direction of
   a. South-North b. a bar magnet c. a compass needle d. magnetic field.
2. The magnetic field lines due to a straight wire carrying current are
   a. straight b. circular c. parabolic d. electrical.
3. Who first discovered the relationship between electricity and magnetism?
   a. Faraday b. Newton c. Manwell d. Oersted
4. Which of the following devices work on the principle of electromagnetic induction?
   a. Ammeter b. voltmeter c. generator d. galvanometer
5. A fuse in electric circuit acts as a:
   a. current multiplication b. voltage multiplication
   c. power multiplier d. safely device

B. Fill in the blanks.

1. _____ showed that electricity and magnetism are related phenomenon.
2. The region surrounding a magnet, in which force of a magnet can be detected is called its _____
3. The strength of magnetic field is directly proportional to _____ passing through the conductor.
4. The magnetic field is _____ inside a solenoid.
5. An electric motor is a device which converts _____ into _____

C. State whether the given statements are true or false.

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

D. Match the following.

1. Colour code of earth wire	electrical energy into mechanical
2. Dry cell produces	green
3. A coil wound into a tightly packed helix	electromagnet
4. Magnets that have temporary magnetism	solenoid
5. Electric motor	direct current

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Class: X Date: .....

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E. Answer the following questions.

Very Short Answer Questions

1. Name two rules for determining the direction of magnetic field.
2. State the principle of electric motor.

Short Answer Questions

1. What is earthing of electrical appliances?
2. What is a magnetic compass?

Long Answer Questions

1. What are the ways of increasing speed of rotation of the coil of a motor?
2. What is the need for earthing appliances?

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ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. d
2. b
3. d
4. c
5. d

B. Fill in the blanks.

1. oersted
2. magnetic field
3. current
4. uniform
5. electrical energy, mechanical energy

C. State whether the given statements are true or false.

1. T
2. F
3. T
4. F

D. Match the following.

1. Colour code of earth wire	green
2. Dry cell produces	direct current
3. A coil wound into a tightly packed helix	solenoid
4. Magnets that have temporary magnetism	electromagnet
5. Electric motor	electrical energy into mechanical

E. Answer the following questions.

Very Short Answer Questions

1. Right hand-thumb rule, Manwell's corkscrew rule.
2. When an electric current is passed through a conductor placed at right angle to a magnetic field, a force perpendicular to both the magnetic field and the current acts on the conductor. This makes the conductor move.

Short Answer Questions

1. Connecting the metallic body of an electrical appearance to the earth (zero potential) by a conducting wire to prevent electric shock is called the earthing of an appliance.
2. A magnetic compass is an instrument having a small bar magnet in the form of a needle which can turn freely on a pivot (or pin).

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Long Answer Questions

1. The speed of rotation of the coil of an electric motor can be increased by the following ways:
   - By increasing the current flowing in the coil.
   - By increasing the number of turns in the coil.
   - By increasing the area of cross section of the coil.
   - By increasing the strength of radial magnetic field.
   - By laminating the soft iron core.
2. There is a need of earthing appearances because
   - Sometimes the insulation of a live wire may get damaged or worn out and it may come in contact with the metallic body of the appliance. When such an electrical appliance is connected to mains, and the body of the appliance is not connected to the earth wire, it can lead to severe electric shock.
   - Earthing also saves the appliance from being damaged in case of short circuit and overloading. The earth can be regarded as an electric sink.

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