WORKSHEET 1

CHAPTER 10 – ELECTROMAGNETIC

A. Tick (✓) the correct option.

1. The magnetic effect of current was discovered by
   a. Hans oersted. b. Newton. c. Einstein. d. Niels Bohr.
2. On increasing the distance from a current carrying conductor, the strength of magnetic field
   a. increases. b. remains same. c. decreases. d. none of these.
3. A coil whose diameter is less than its length is called
   a. electromagnetic. b. solenoid. c. DC motor. d. none of these.
4. An electric motor converts electrical energy into
   a. mechanical energy. b. potential energy. c. chemical energy. d. none of these.
5. The direction of induced current in AC generator is given by
   a. Fleming's left-hand rule. b. Right-hand thumb rule.
   c. Fleming's right-hand rule. d. none of these.

B. Fill in the blanks.

1. _____ changes its polarity after regular intervals of time.
2. Transformation ratio of _____ is greater than 1.
3. _____ transformers are used in bells, ratio sets, transistors, etc.
4. _____ are used to run machinery in factories.
5. An _____ is a solenoid with soft iron core.

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

1. Retentivity is referred to as the capacity of a material to retain magnetic property.
2. The strength of magnetic field is inversely proportional to the current passing through the conductor.
3. The magnetic field of a solenoid can be decreased by increasing the number of turns of the solenoid.
4. An electromagnet gets demagnetised as soon as the current is switched off.
5. Transformer converts low alternating voltage at higher current into high alternating voltage at lower current.

D. Match the following.

1. Step up transformer	transformation ratio < 1
2. Frequency of AC in India	North to South
3. 1 tesla	transformation ratio > 1
4. Step down transformer	1 N/Am
5. Magnetic field lines	50 Hz

Name: ..... Teacher's signature: .....

Class: X ..... Date: .....

E. Answer the following questions.

Very short answer questions

1. What is a magnetic field line?
2. How is strength of magnetic field dependent an the amount of current flowing through the conductor?

Short answer questions

1. State the right-hand thumb rule.
2. How can we increase the strength of magnetic field of an electromagnet?

Long answer questions

1. Differentiate between an electromagnet and a permanent magnet.
2. What are the advantages of AC over DC?

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

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

B. Fill in the blanks.

1. Alternating current
2. step-up transformer
3. Step-down
4. DC motors
5. electromagnet

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

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

D. Match the following.

1. Step up transformer	transformation ratio > 1
2. Frequency of AC in India	50 Hz
3. 1 tesla	1 N/Am
4. Step down transformer	transformation ratio < 1
5. Magnetic field lines	North to South

E. Answer the following questions.

Very short answer questions

1. The path which a north pole would follow is called a magnetic field line.
2. Magnetic field (B) × Current (I).

Short answer questions

1. If a current-carrying conductor is imagined to be held in the right hand such that thumb points in the direction of current, then the tips of fingers encircling the conductor will give the direction of magnetic field lines.
2. i. By increasing the number of turns of the solenoid.
   ii. By increasing the strength of the current through the solenoid.

Long answer questions

1. Refer Table 10.1, Page 204 of the textbook.
2. The advantages of AC over DC are
   i. Alternating current can be transmitted over long distances with negligible loss of energy.
   ii. AC at any desired voltage can be obtained using transformers.
   iii. The magnitude of AC can be reduced using a choke coil, without involving loss of energy.
   iv. When required, AC can be changed into DC.