



Octahedron institute, chandan nagar

office no 2, 1st floor chandan complex

Class 10 - Science

magnetic effect of current

Maximum Marks: 100

Time Allowed: 2 hours

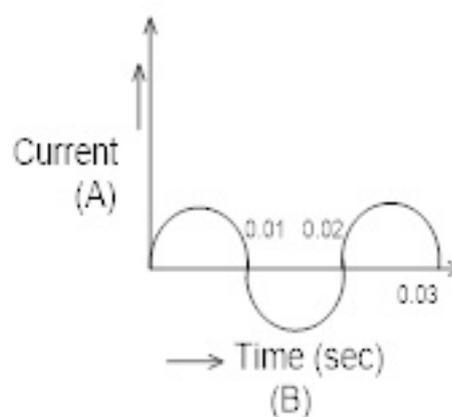
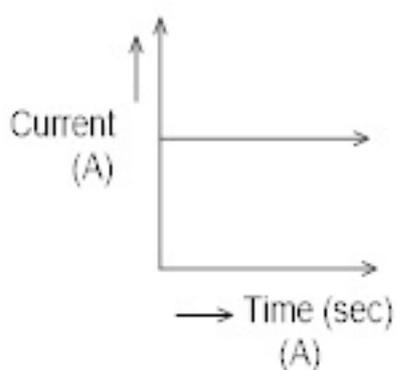
General Instructions:

Answer all questions

Section A

1. Why does a current carrying conductor kept in a magnetic field experience force? 2
What is the direction of force acting on the conductor?
2. What is magnetic effect of electric current? 2
3. List three sources of magnetic fields. 2
4. A circuit has a fuse of 5 A. What is the maximum number of 100 watt (220 V) bulbs 2
which can be safely used in the circuit?
5. Which sources produce alternating current ? 2
6. Kanchi draws magnetic field lines of field close to the axis of a current carrying 2
circular loop. As she moves away from the centre of the circular loop she observes
that the lines keep on diverging. How will you explain her observation?
7. State Fleming's left-hand rule. 2
8. Why don't two magnetic lines of force intersect each other? 2
9. List the properties of magnetic field lines. 2
10. State Faraday's law of electromagnetic induction. 2
11. Which sources produce alternating current? 2
12. Explain different ways to induce electric current in a given coil. 2
13. A current carrying conductor is placed perpendicular to the uniform magnetic 2
field. What happens to displacement of the conductor if
(i) Amount of current increases
(ii) If horse shoe magnet is replaced by a weak horse shoe magnet.
14. Why does a compass needle get deflected when brought near a bar magnet? 2
15. (i) How is the direction of magnetic field at a point determined? 2

- (ii) What is the direction of magnetic field at the centre of a current- carrying circular loop?
16. The magnetic field in a given region is uniform. Draw a diagram to represent it. 2
17. List the properties of magnetic lines of force. 3
18. Why don't two magnetic lines of force intersect each other ? 3
19. Compare the permanent magnet and an electromagnet. 3
20. What are magnetic field lines? How is the direction of a magnetic field at a point determined? Mention two important properties of magnetic field lines. 3
21. **(a)** Define the term current rating of an electric fuse? 3
(b) Name the material used to make electric fuse?
(c) Name two safety measure commonly used in electric circuit and appliances?
22. (a) What is a short circuit? 3
 (b) What is overloading? How can you avoid overloading?
23. Consider a circular loop of wire lying in the plane of the table. Let the current pass through the loop in the clockwise direction. Apply right-hand rule to find out the direction of the magnetic field inside and outside the loop. 3
24. What is meant by short-circuiting ? 3
25. An electric oven of 2 kW power rating is operated at 220 V that has a current rating of 5 A. What do you expect in such a situation? Explain. 3
26. What are hazards of electricity ? 3
27. When does an electric short circuit occur ? 3
28. What is the pattern of magnetic field due to a circular coil carrying current ? 5
29. Current- time graph from two different sources are shown in the figure. 5



- (i) Name the type of current shown by graph (A) and (B)?

- (ii) Name any one source of shown by (A) and (B)?
- (iii) What is frequency of current in case (B)?
- (iv) Write two differences between current shown by (A) and (B)?
30. What is the pattern of magnetic field pattern due to current carrying conductor. 5
31. Explain the underlying principle and working of an electric generator by drawing a labelled diagram. What is the function of brushes? 5
32. Explain the principle, construction and working of an electric motor with a help of labelled diagram? 5
33. Draw a labelled diagram of an electric motor. Explain its principle and working. What is the function of split ring in an electric motor? 5
34. Explain the different ways to induce the current in a coil ? 5