

**INTERNATIONAL INDIAN SCHOOL – RIYADH
WORK SHEET SA1– PHYSICS**

One mark questions

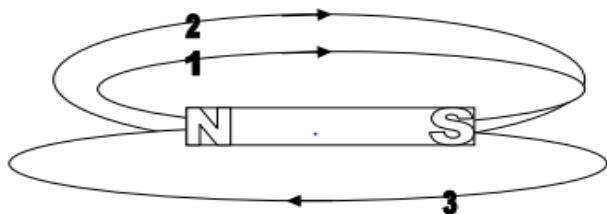
1. Define the term “electric current”.
2. Define the term ‘resistivity’ of a material.
3. How is a Voltmeter connected in the circuit to measure the potential difference between two points?
4. You have two metallic wires of resistances 6 ohm and 3 ohm. How will you connect these wires to get the effective resistance of 2 ohm?
5. If the distance between two electric charges is doubled, how much will the force exerting between them change to?
6. Why does the bulk of iron filings stick to the ends of a bar magnet and not at its centre?
7. If the frequency of A.C. is 50 Hz. Then how many times it is changing its direction in 1 second?
8. What is the pattern of the magnetic field lines around a straight conductor carrying current?
9. If the current is flowing in the direction of advancement of screw, then what is the direction of magnetic field lines?
10. How can you say that the magnetic field is uniform inside the solenoid?
11. Which property of a proton will change while it moves freely in a magnetic field?
12. According to Fleming's right hand rule, which part of right hand indicate the movement of conductor?
13. If the no. of turns of a circular current carrying coil are doubled, then how will the magnetic field produced by it changes?
14. In which position the force on conductor is maximum when it is placed in uniform magnetic field?

Two marks questions

- 15.. State Ohm's law. “The resistance of a conductor is 1Ω .” What is meant by this statement?
16. Why are coils of electric toaster made of an alloy rather than a pure metal?
17. Why is the series arrangement not used for domestic circuits?
18. A wire of resistivity ‘ r ’ is stretched to double its length. How does it affect the (a) resistance (b) resistivity?
19. Write two points of difference between direct and alternate current
20. An electric geyser has the rating 2000W-220 V marked on it. What should be the minimum current rating (in whole number) of the fuse – wire to be used?
21. An electric lamp is marked 100 W, 220 V. It is used for 5 hour daily. Calculate (i) its resistance while glowing (ii) energy consumed in kWh per day.
22. A bulb is rated at 5.0 volt, 100 mA. Calculate its (i) power (ii) resistance.
23. A wire of resistance ‘ R ’ is stretched by 50%. What will be percentage change in its resistance?
24. The resistance of 100 W bulb is less than resistance of 40 W bulb. Explain the reason.

25. Two bulbs have ratings 100 W, 220 V and 60 W, 220 V respectively. Which one has a greater resistance?

26. A student draws three magnetic field lines 1,2 and 3 of a bar magnet with the help of a compass needle as shown in figure



(a) Is this configuration possible?

(b) If not what is wrong in figure and why?

27. Suppose you are sitting in a room facing one of the walls. An electron beam moving horizontally from your back goes towards the wall in front you and is deflected to your left, what is the direction of magnetic field in the room?

28. A current through a horizontal power line flows in north to south direction. What is the direction of magnetic field (i) at a point directly below it and (ii) at a point directly above it?

29. Electric appliances like electric press, toaster, fans etc. are connected to electric mains through three-pin plug. Why ?

3 marks questions

30. Derive the equation for resultant resistance of Resistors in series

31. How much work is done in moving a charge of 3 coulomb from a point at the volts 115 to a point at 125 volts?

32. A heater wire whose power is 4KW is connected to 220 V source calculate:-

(i) Electric current in the circuit (ii) Resistance of heater (iii) Energy consumed in 2 hours.

33. Study the following data and write which set of value should be rejected so that ohm's law holds good for the remaining set of values. Draw the graph and find out the mean resistance (3)

V(volts)	2.5	5.0	10.0	15.0	20.0	25.0
I(A)	0.1	0.2	0.3	0.6	0.8	1.0

34. (a) Which has more resistance: 100W bulb or 60W bulb?

(b) A wire of resistance 5W is bent in the form of a closed circle. What is the effective resistance between the two points at the end of any diameter of the circle?

35. Two wires A and B are of equal lengths, different cross-sectional areas and made of the same metal.

(i) Name the property which is same for both the wires.

(ii) Name the property which is different for both the wires.

(iii) If the resistance of wire A is four times the resistance of wire B, calculate

(a) the ratio of the cross-sectional areas of the wires.

(b) the ratio of the radii of the wires.

36. A resistor of 8 ohm is connected in parallel with another resistor X. The resultant resistance of the combination is 4.8 ohm . What is the value of X?

37. How will you connect three resistors of 2 ohm , 3 ohm , 5 ohm respectively so as to obtain a resultant resistance of 2.5 ohm ? Draw the diagram to show arrangement.

38. A wire of resistance 5 ohm is bent in form of closed circle. What is the effective resistance between the two points at ends of any diameter of circle?

39. A torch bulb has a resistance of 1Ω when cold. It draws a current of 0.2 A from a source of 2 V and glows. Calculate

(i) the resistance of the bulb when glowing and

(ii) explain the reason for the difference in resistance.

Calculate the resistance of 1 km long copper wire of radius 1 mm.

(Resistivity of copper = $1.72 \times 10^{-8} \Omega\text{m}$)

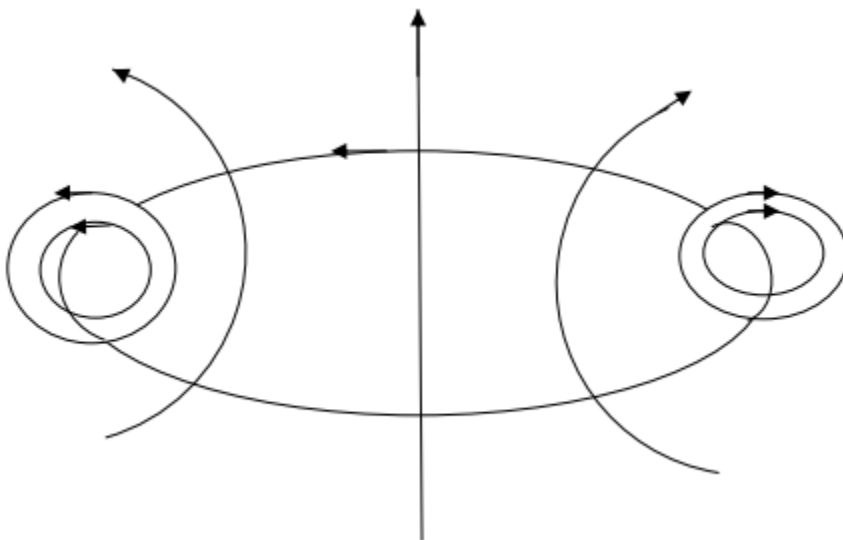
40. When a potential difference of 2 V is applied across the ends of a wire of 5 m length, a current of 1A is found to flow through it. Calculate: (i) the resistance per unit length of the wire (ii) the resistance of 2 m length of this wire (iii) the resistance across the ends of the wire if it is doubled on itself.

41. Consider a circular wire lying in the plane of the table and the direction of current in it is anticlock wise.

(i) Draw the magnetic field lines produced around it.

(ii) Why does magnetic field at the center of current carrying circular loop appear straight?

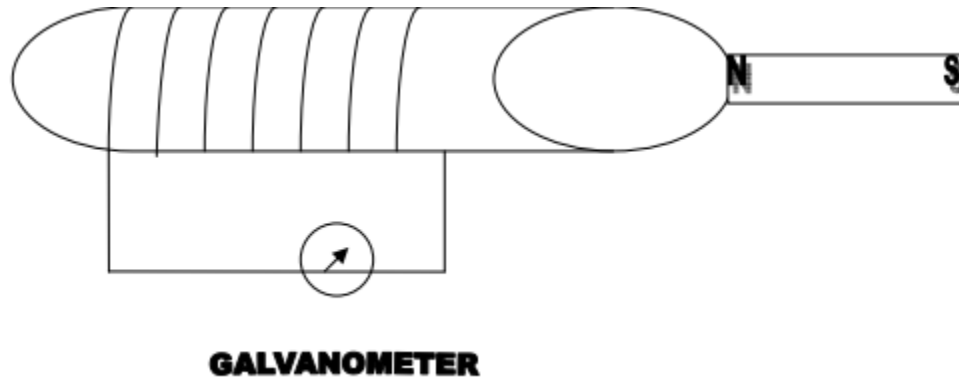
Explain with diagram.



42. If we place a compass needle near straight conductor carrying current

- (a) What happens to the deflection of the compass needle if the direction of current is reversed?
- (b) What change will you notice in the compass needle if it is moved away from conductor but the current through the conductor remains the same?

43. A magnet is moving towards a coil as shown in figure



- (1) Which phenomenon is shown in figure.
- (2) Which physical quantity is set up in the coil when there is a relative motion between magnet and coil?
- (3) What may be the cause of production of that physical quantity?