

Electric Current

1. Explain how electron flow causes electric current with Lorentz – Drude theory of electrons.(AS1)
2. How does a battery work? Explain. (AS1)
3. Write the difference between potential difference and emf. (AS1)
4. How can you verify that the resistance of a conductor is temperature dependent? (AS1)
5. What do you mean by electric shock? Explain how it takes place. (AS1)
6. Explain Kirchhoff's laws with examples. (AS1)
7. What is a value of 1 KWH in Joules? (AS1)
8. Deduce the expression for the equivalent resistance of three resistors connected in series.(AS1)
9. Deduce the expression for the equivalent resistance of three resistors connected in parallel.(AS1)
10. Silver is a better conductor of electricity than copper. Why do we use copper wire for conduction of electricity? (AS1)
11. Draw a circuit diagram for a circuit in which two resistors A and B are connected in series with a battery and a voltmeter is connected to measure the potential difference across the resistor A.(AS5)
12. Explain overloading of household circuit. (AS1)
13. Why do we use fuses in household circuits? (AS1)
14. Two bulbs have ratings 100 W, 220V and 60 W, 220 V. Which one has the greater resistance?(AS1)
15. Why don't we use series arrangement of electrical appliances like bulb, Television, fan and others in domestic circuits? (AS1)
16. A wire of length 1m and radius 0.1 mm has a resistance of $100\ \Omega$. Find the resistivity of the material. (AS1)
17. Why do we consider tungsten as a suitable material for making the filament of a bulb? (AS2)
18. Are the head lights of a car connected in series or parallel? Why? (AS2)

19. Why should we connect electric appliances in parallel in a household circuit? What happens if they are connected in series? (AS2)
20. How can you appreciate the role of a small fuse in house wiring circuit in preventing damage to various electrical appliances connected in the circuit?(AS7)
21. If the resistance of your body is 100000Ω . What would be the current that flows in your body when you touch the terminals of a 12V battery? (AS7)
22. Uniform wires of resistance 100Ω are melted and recast into wire of length double that of the original. What would be the resistance of the new wire formed?(AS7)
23. Imagine that you have three resistors of 30Ω each. How many resultant resistances can be obtained by connecting these three in different ways? Draw the relevant diagrams.
24. Observe the circuit and answer the questions given below. (AS7)
- Are resistors 3 and 4 in series?
 - Is the battery in series with any resistor?
 - What is the potential drop across the resistor 3?
 - What is the total emf in the circuit if the potential drop across resistor 1 is 6V?
25. A house has 3 tube lights, two fans and a Television. Each tube light draws 40W. The fan draws 80W and the Television draws 60W. On the average, all the tube lights are kept on for five hours, two fans for 12 hours and the television for five hours every day. Find the cost of electric energy used in 30 days at the rate of Rs. 3.00 per Kwh. (AS7)