

# AMIT AJMANI'S ACADEMY

D-16/82, SECTOR-7, ROHINI

PH: 9810476588, 9953371470

---

## X PHYSICS CLASS TEST

M.M.-25

Name of Student: \_\_\_\_\_ Class & Sub: \_\_\_\_\_  
Topic of Test: ELECTRICITY No. 1 Date : \_\_\_\_\_

---

1. Define the unit of current. 1
2. What is meant by saying that the potential difference between two points is 1 V? 1
3. What is a voltmeter? How is it connected in the circuit to measure the potential difference between two points? 2
4. Will current flow more easily through a thick wire or a thin wire of the same material, when connected to the same source? Why? 2
5. Let the resistance of an electrical component remains constant while the potential difference across the two ends of the component decrease to half of its former value. What change will occur in the current through it? Why? 2
6. Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal? 2
7. Resistance of an incandescent filament of a lamp is more than that when it is at room temperature. Why? 2
8. How can three resistors of resistances 2 ohms, 3 ohms, and 6 ohms be connected to give a total resistance of (i) 4 ohms, (ii) 1 ohm? 2
9. Why is tungsten metal used for making filaments of incandescent lamp bulbs? 2
10. Why does the cord of electric heater not glow while the heating element does? 2
11. A piece of wire of resistance  $R$  is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is  $R'$ , find the ratio of  $R$  and  $R'$ . 3
12. On what factors does the resistance of a conductor depend? And how? 3
13. What are the advantages of connecting electrical devices in parallel with the battery instead of connecting them in series? 3
14. Two conducting wires of same material and equal lengths and equal diameters are first connected in series and then parallel in a circuit across the same potential difference. Find the ratio of heat produced in series and parallel combinations. 3

---

### ANSWERS

# AMIT AJMANI'S ACADEMY

D-16/82, SECTOR-7, ROHINI

PH: 9810476588, 9953371470

## X PHYSICS CLASS TEST

M.M.-30

Name of Student: \_\_\_\_\_ Class & Sub: \_\_\_\_\_

Topic of Test: ELECTRICITY No. 2 Date : \_\_\_\_\_

1. What is the SI Unit of electric charge? 1
2. How is an ampere related to a coulomb? 1
3. Which physical quantity is represented by coulomb per second? 1
4. What is the unit of electric potential difference? 1
5. How many joules are equal to 1 KWH? 1
6. Which physical quantity remains unchanged when the resistances are connected in series or when they are connected in parallel? 2
7. Give reason why metals conduct electricity? 2
8. The length of a wire is doubled and its cross-sectional area is also doubled. What is the change in its resistance? 2
9. Should the heating element of an electric iron be made of iron, silver or nichrome wire? Why? 2
10. Define resistivity of a material. State its SI unit. 2
11. A copper wire has a diameter 0.5 mm and resistivity of  $1.6 \times 10^{-8}$  ohm meter. What will be the length of this wire to make its resistance 10 ohms? How much does the resistance change if the diameter is doubled? 3
12. An electric lamp of 100 ohms, a toaster of resistance 50 ohms and a water filter of resistance 500 ohms are connected in parallel to a 220 V source. What is the resistance of an electric iron connected to the same source that takes as much current as all three appliances and what is the current through it? 3
13. How many  $176 \Omega$  resistors when connected in parallel are required to carry 5 A on a 220 V line? 3
14. Several electrical bulbs designed to be used on a 220 V electric supply line, are rated 10 W. How many lamps can be connected in parallel with each other across the two wires of 220 V line if the maximum allowable current is 5 A? 3
15. A hot plate of an electric oven connected to a 220 V line has two resistance coils A and B, each of  $24 \Omega$  resistor, which maybe used separately, in series, or in parallel. What are the currents in the three cases? 3

## ANSWERS

# AMIT AJMANI'S ACADEMY

D-16/82, SECTOR-7, ROHINI

PH: 9810476588, 9953371470

## X PHYSICS CLASS TEST

M.M.-35

Name of Student: \_\_\_\_\_ Class & Sub: \_\_\_\_\_

Topic of Test: ELECTRICITY No. 3 Date : \_\_\_\_\_

1. A wire of resistance  $10 \Omega$  is bent in the form of a closed circle. What is the effective resistance between the two points at the ends of any diameter of circle? 1
2. The length of a wire is doubled, how its resistivity changes? 1
3. What is the unit of electric resistance? 1
4. Why is chemically inactive nitrogen or argon filled in an electric bulb? 1
5. For an electric iron of 1 KW rating at 220 V, fuse of which capacity is used? 1
6. Two wires A and B have equal lengths and equal resistance, which one is thicker if the resistivity of A is more than the resistivity of B? Why? 2
7. An electric heater of resistance  $8 \Omega$  draws 15 A from the service mains for 2 hours. Calculate the rate at which heat is developed in the heater. 2
8. A bulb is marked 25 W and another 40 W. Which one has a higher resistance if both are to be used at 220 V in domestic circuit in parallel? Why? 2
9. What is an ammeter? How is it connected in a circuit? 2
10. A wire is stretched so as to make its length double. What is the effect on its resistivity and why? 2
11. An electric refrigerator rated 400 W operates 8 hours per day. What is the cost of the energy to operate it for 30 days at Rs. 3.00 per KWH? 3
12. Resistance of a metal wire of length 1 m is  $26 \Omega$  at 20 C. If the diameter of the wire is 0.3 mm, what will be the resistivity of the metal at that temperature? 3
13. A 100 W electric bulb is lighted for 2 hours daily and four 40 W bulbs are lighted for 4 hrs daily. Calculate total energy consumed in KWH in a month of 30 days. 3
14. A torch bulb is rated 3.0 V and 600 mA. Calculate its power, its resistance and the energy consumed if this bulb is lighted for 4 hours. 3
15. Draw diagrams to show series and parallel combination of resistors. State the salient features of the combinations. 3
16. Explain Ohm's Law and state an activity to verify Ohm's Law. 3

## ANSWERS