

PHYSICS

CH: 12 ELECTRICITY

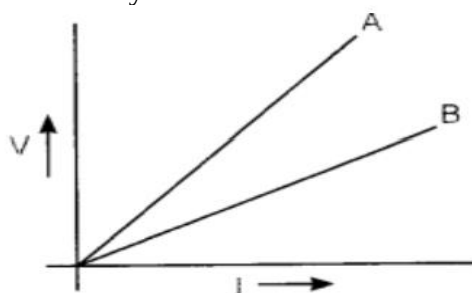
Name: _____

Date: _____

Class: X Sec: ____

1. Why does an electric bulb become dim when an electric heater in parallel circuit is made on? Explain.
Why does the dimness increase after sometime?
2. A metallic wire of resistance R is cut into ten parts of equal length. Two pieces each are joined in series and then five such combinations are joined in parallel. What will be the effective resistance in such case?
3. A wire of length L and resistance R is stretched so that its length is doubled and the area of cross – section is halved. How will its: (a) resistance change (b) resistivity change?
4. Two wires of equal length, one of copper and the other of manganin have the same thickness. Which one can be used for (i) electrical transmission lines (ii) electrical heating devices? Why?
5. A current of 0.5 A is drawn by a filament of an electric bulb for 10 min . Find the amount of electric charge that flows through the circuit.
6. How much work is done in moving a charge of 2C across two points having a potential difference 12V ?
7. The potential difference between terminals of an electric iron is 240 V and the current is 5A . what is the resistance of the electric iron?
8. A piece of wire of resistance 20Ω is drawn out so that its length is increased to twice its original length. Calculate the resistance of the wire in the new situation.
9. A 4Ω resistance wire is doubled on it. Calculate the resistance of the wire.
10. Resistance of a metal wire of length 1m is 26Ω at 20°C . If the diameter of the wire is 0.3mm . What will be the resistivity of the metal at that temperature?
11. A wire of resistance 50hm is bent in the form of a circle. What is the effective resistance between the two points at ends of any diameter of the circle?

12. An electric iron has a rating of 750W, 220V. Calculate (i) current passing through it and (ii) its resistance, when in use.
13. An electric bulb is rated as 50W, 220V. Calculate the energy consumed by the bulb in 20 minutes. Express your answer in commercial unit of electrical energy.
14. Which has a higher resistance: 50W lamp bulb or a 25W lamp bulb and how many times?
15. Two electric bulbs of 50W and 100W are given. Which one will be brighter when they are connected (i) in series and (ii) in parallel?
16. a) Mention the condition under which a current can flow in a conductor.
b) Two electric bulbs rated 100W; 220V and 60W; 200V are connected in parallel to an electric main of 220V. Find the current drawn by the bulbs from the mains.
17. (a) State Ohm's law.
(b) How is an ammeter connected in an electric circuit?
(c) The power of a lamp is 100W. Find the energy consumed by it in 1 minute.
18. (a) Two lamps rated 100W, 220V and 10W, 220V are connected in parallel to 220V supply. Calculate the total current through the circuit.
(b) Two resistors X and Y of resistance 2Ω and 3Ω respectively are first joined in parallel and then in series. In each case the voltage supplied is 5V.
(i) Draw circuit diagrams to show the combination of resistors in each case.
(ii) Calculate the voltage across the 3Ω resistor in the series combination of resistors.
19. V-I graph for two wires A and B are shown in the figure. If both wires are of same length and same thickness, which of the two is made of a material of high resistivity? Give justification for your answer.



In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.
(e) Both Assertion and Reason are false.

20. Assertion: The connecting wires are made of copper.

Reason: Copper has very high electrical conductivity.

21. Assertion: The resistance of a given mass of copper wire is inversely proportional to the square of length.

Reason: When a copper wire of given mass is stretched to increase its length, its cross-sectional area also decreases.

22. Assertion: Electric current flow from a body at 15 V to 10 V.

Reason: Electric current flow from a body at higher potential to lower potential.

23. Assertion: A fuse used in electric circuit has high resistance and low melting point.

Reason: During the flow of any unduly high electric current the fuse wire melts and protects the circuits and appliances

24. Assertion: The commercial unit of electrical energy is kilowatt hour.

Reason: The SI unit of power is watt

25. Two resistors with resistances $5\ \Omega$ and $10\ \Omega$ are to be connected to a battery of 6 V so as to obtain

i) Minimum current ii) maximum current

a) How will you connect the resistances in each case?

b) Calculate the strength of the total current in the circuit in the two cases.