

HOLIDAY HOMEWORK

Class - X Chapter –ELECTRICITY

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. State Ohm’s law. “The resistance of a conductor is 1Ω .” What is meant by this statement?
6. Why are coils of electric toaster made of an alloy rather than a pure metal?
7. Why is the series arrangement not used for domestic circuits?
8. A wire of resistivity ‘r’ is stretched to double its length. How does it affect the (a) resistance (b) resistivity?
9. Derive the equation for resultant resistance of Resistors in series
10. 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?[30j]

HOLIDAY HOMEWORK

11. 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

12 A wire of resistance 20 ohm 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?

13 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.

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

15 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.

HOLIDAY HOMEWORK

16. 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?

17 Why electrons flow in a wire when connected to a battery ?

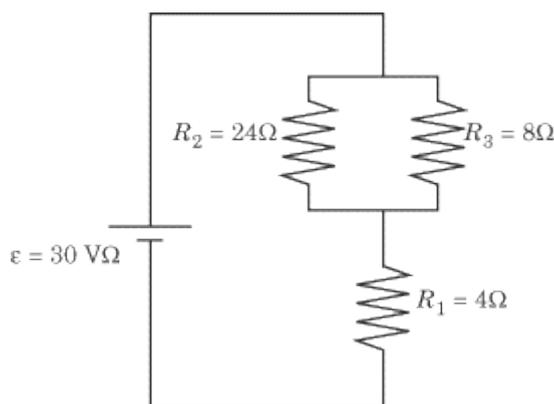
Q2 Define

- 1) Electric current
- 2) Potential difference

18 Find new resistance of wire if it is stretched to twice its original length. Original resistance was 20 ohm. Also how its resistivity will change .

19 Which combination we prefer for domestic circuit, parallel or series? Give reason

20 Find the total resistance in the diagram below.



Q21 Why we use fuse in domestic circuit?

HOLIDAY HOMEWORK

Q22 Define

- 1) Resistivity
- 2) Electric circuit

Q23 Find new resistance of wire which is doubled on itself. If Original resistance of wire is 50 ohm .

Q24 Write factors affecting resistance of a wire .

Q25 Explain working of bulb and fuse ?

Important questions of cbse papers

Q26 Calculate the potential difference between two terminals of a battery if 100 joules of work is done to transfer 20 coulomb from one terminal to another. **(CBSE ALL INDIA 2009 , 2013)**

Q27 Calculate the current in a circuit if 500 C of charge pass on through it in 10 minutes . **CBSE ALL INDIA 2009 , 2013)**

Q 28 Calculate the amount of charge that would flow in 2 hours through an element of an electric bulb drawing a current of 0.25 A **(CBSE 2004)**

Q29 Define electric circuit . Distinguish between open and closed electric circuits . **(CBSE 2010)**

Q30 A piece of wire of resistance 20 ohm is drawn out so that its length is increased to twice its original length . Calculate the resistance of the wire in the new situation . **(CBSE (DELHI) 2009, 2012)**

HOLIDAY HOMEWORK

Q31 Resistance of a metal wire of length 1m is 26 ohm at 20 degree Celsius . If the diameter of the wire is 0.3 mm , what will be the resistivity of the metal at that temperature ? **(CBSE 2011 , 2013)**

Q32 A toaster of resistance 100 ohm is connected to 220 V line . Calculate the current drawn by the toaster . **(CBSE 2012)**

Q33 State the factors on which resistance of a conductor depends . **(CBSE 2012)**

Q34 Define resistance of a material . Write its SI unit . **(CBSE 2012)**

Q35 State ohms law . write mathematical form of ohm's law . **(CBSE 2010)**

Q 36 Four resistors of 2 ohm each are joined end to end to form a square ABCD . Calculate the equivalent resistance of the combination between any two adjacent corners . **(CBSE 2011)**

Q37 A wire of resistance 20 ohm is bent in the form of a circle . What is the effective resistance between two points at the end of any diameter of the circle ? **(CBSE foreign 2005)**

Q38 An electric heater of resistance 500 ohm is connected to a main supply for 30 min . if 5 A current

HOLIDAY HOMEWORK

flows through the filament of the heater . calculate the heat energy produced in the heater . **(CBSE 2010)**

Q39 An electric heater is rated 1 KW , 220 V . Calculate resistance of the heating element . **(CBSE 2011, 2012)**

Q40 Calculate the amount of heat produced in an electric heater of resistance 1000 ohms if 6A current is passed through it for 10 min . **(CBSE 2011)**

Q41 Two lamps, one rated 100W at 220 V and other 40 W at 220 V are connected in parallel to 220 V main supply . Calculate the current drawn from the supply line . **(CBSE 2006 , 2011)**

Q42 An electric heater is rated at 2 KW . Calculate the cost of using it for 2 hr daily for the month of September, if each unit cost 4rs . **(CBSE 2012)**

Q43 Will current flow easily through a thick wire or thin wire of the same material , when connected to the same source . Why ? **(CBSE 2013)**

Q45 Judge the equivalent resistance when the following are connected in parallel : **(CBSE 2013)**

- a) 1 ohm and 106 b) 1ohm and 1000 ohm

HOLIDAY HOMEWORK

Q 46 How can three resistors of resistances 2ohm , 3ohm and 6 ohm be connected to give a total resistance of a) 4 ohm b) 1 ohm ? **(CBSE 2012)**

Q47 Why does the connecting cord of an electric heater not glow while the heating element does ? **(CBSE 2008)**

Q49 An electric motor takes 5 A from a 220 V line . Determine the power of the motor and energy consumed in 2 h . **(CBSE 2008)**

Q50 Mention the factors that maintain the flow of charge through a conductor . **(CBSE 2013)**

ACTIVITY PLAN FOR THE CHAPTER

- Students can explore simulations of electric circuit from phetcolorado.edu and can understand the concepts of Electric circuit, Potential difference and ohms law . They can also connect resistors in series and in parallel to observe the changes in ammeter and voltmeter .