



PHYSICS

BOOKS - PSEB

Electricity

Exercise

1. 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 , then the ratio R/R' is

A. $\frac{1}{25}$

B. $\frac{1}{5}$

C. 5

D. 25

Answer:



Watch Video Solution

2. Which of the following terms does not represent electrical power in a circuit?

A. I^2R

B. I^R

C. VI

D. V^2 / R

Answer:



Watch Video Solution

3. An electric bulb is rated 220 V and 100 W. When it is operated on 110 V, the power consumed will be -

A. 100 W

B. 75W

C. 50W

D. 25W

Answer:



Watch Video Solution

4. Two conducting wires of the same material and of equal length and equal diameters are first connected in series and then in parallel in an electric circuit. The ratio of heat produced in series and parallel combination would be (a) 1:2 (b) 2:1 (c) 1:4 (d) 4:1

A. 1 : 2

B. 2 : 1

C. 1 : 4

D. 4 : 1

Answer:



Watch Video Solution

5. How is a voltmeter connected in the circuit to measure potential difference between two points?



Watch Video Solution

6. A copper wire has diameter 0.5 mm and resistivity of 1.6×10^{-8} How much does the

resistance change if the diameter is doubled?



[Watch Video Solution](#)

7. The values of current I flowing in a given resistor for the corresponding values of potential difference V across the resistor are given below_

I (amperes)	0.5	1.0	2.0	3.0	4.0
V (volts)	1.6	3.4	6.7	10.2	13.2

Plot a graph between V and I and calculate the resistance of that resistor.



[Watch Video Solution](#)

8. A battery 9 V is connected in series with resistors of 0.2Ω , 0.3Ω , 0.4Ω , 0.5Ω and 12Ω respectively. How much current will flow through a 12Ω resistor?



[Watch Video Solution](#)

9. How many 176Ω resistors in parallel are required to carry 5A on a 220 V line?



[Watch Video Solution](#)

10. Show how you would connect three resistors, each of resistance 6ω , so that the combination has a resistance of : 9ω



[Watch Video Solution](#)

11. Show how you would connect three resistors, each of resistance 6ω , so that the combination has a resistance of : 4ω



[Watch Video Solution](#)

12. Several electric 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 220 V line if the maximum allowable current is 5A?



Watch Video Solution

13. A hot plate of an electric oven connected to a 220 V line has two resistance coils A and B, each of 24Ω resistance, which may be used

separately, in series or in parallel what are current in three cases?



[Watch Video Solution](#)

14. Compare this power used in the 2ω resistor in each of the following circuits:- a $6V$ battery in series with 1ω and 2ω resistors, and



[Watch Video Solution](#)

15. Compare this power used in the 2ω resistor in each of the following circuits: - $4V$ battery in parallel with 12ω and 2ω resistors?



[Watch Video Solution](#)

16. Two lamps, one rated 100 W at 220 V , and the other 20 W at 220 V , are connected in parallel to electric mains supply. What current is drawn from the line if the supply voltage is 220 V ?





[Watch Video Solution](#)

17. Which uses more energy, a 250 W TV set for 1 hour or a 1,200 W toaster for 10 minutes?



[Watch Video Solution](#)

18. An electric heater of resistance 8Ω draws 15 A from service mains for 2 hours. Calculate the rate at which heat is developed in the heater.



[Watch Video Solution](#)

19. Explain the following : Why is the tungsten used almost exclusively for filament of electric lamps?



Watch Video Solution

20. Explain the following: Why are the conductors of electric heating devices, such as bread toasters and electric irons, made of an alloy rather than pure metal?



Watch Video Solution

21. Explain the following : Why is the series arrangement not used in domestic circuits?



Watch Video Solution

22. Explain the following:How does the resistance of a wire vary with its area of cross-section?



Watch Video Solution

23. Explain the following : Why are copper and aluminium usually employed for electricity transmission?



Watch Video Solution