



PHYSICS

BOOKS - SANTRA PHYSICS (BENGALI ENGLISH)

CURRENT ELECTRICITY

Numerical Examples

1. The amount of charge present in a charged body is $3.2 \times 10^{-17} C$. If the charge of an

electron be $e = -1.6 \times 10^{-19}C$, then calculate the number of deficit of electrons in that body.



[Watch Video Solution](#)

2. Calculate the force of repulsion acting between two positive charges of magnitude 20 esu and 30 esu when they are kept at a distance of 2 cm in air.



[Watch Video Solution](#)

3. If 50 coulomb charge flows through a conductor in 10 second, then find the strength of current through the conductor.



[Watch Video Solution](#)

4. If a current of 3 A flows through a conductor for 10 minutes, then calculate the amount of charges that flows through the conductor in that time.



[Watch Video Solution](#)

5. If the potential difference between the two ends of a conductor is 15 volt for which current flowing through it is 3A, then find the resistance of the conductor.



[Watch Video Solution](#)

6. If the resistance of a conductor is 5Ω and strength of current through it be 2A, find the terminal potential difference between the two ends of the conductor.





[Watch Video Solution](#)

7. Resistance of a conductor is twice that of another conductor and the potential differences between the two ends of the two conductors are same. Find the ratio of strengths of currents flowing through them.



[Watch Video Solution](#)

8. Two wires made of same material have equal length and radius of one of them is twice that

of the other. Find the ratio of their resistances.



[Watch Video Solution](#)

9. Resistance of a copper wire of cross sectional area 0.02cm^2 is 5Ω . If the resistivity of copper be $1.72 \times 10^{-6}\Omega\text{-cm}$ then find the length of the wire.



[Watch Video Solution](#)

10. Keeping the temperature and diameter constant the length of a wire is made thrice.

What change in the resistance of the wire will be seen ?



Watch Video Solution

11. If a conducting wire is stretched to make itself twice longer then what change in the resistance of the wire will be seen if its resistivity and volume remain unchanged ?





[Watch Video Solution](#)

12. Resistances of two coils of wire are 3Ω and 6Ω . If these coils be connected is (i) series and in (ii) parallel combination, then what will be the equivalent resistance in each case ?



[Watch Video Solution](#)

13. If a source of electricity having potential difference 10 V sends 5 A current through a

circuit for 2 minutes then calculate the amount of work done by the source.



[Watch Video Solution](#)

14. If a current of strength 3 A flows through a resistance of 20Ω for 10 minutes, then calculate the amount of heat produced in the resistance.



[Watch Video Solution](#)

15. What is the resistance of the filament of a 220V-60 W bulb ? If the bulb is used in a 110 V line instead of 220 V line, then what amount of power it will consume ?



Watch Video Solution

16. Two resistors of resistance 5Ω and 10Ω are connected in parallel with a battery of emf 10 V. Draw the circuit diagram and calculate

the amount of energy expended for 5 minutes
in each resistor.



[Watch Video Solution](#)

17. What is be the strength of current through
a heater coil if a 220 V-0.5 kWh heater is used
in 220 V line ?



[Watch Video Solution](#)

1. If 720 C charge flows through a conductor in 2 minutes, the current-strength through the conductor will be

A. a) 6A

B. b) 12A

C. c) 3A

D. d) 2A

Answer:



Watch Video Solution

2. If a current I flows through a resistance R for time t , then the amount of electrical energy consumed will be

A. a) iR^2t

B. b) i^2Rt

C. c) iRT

D. d) i^2R^2t

Answer:



Watch Video Solution

3. If 4 equal resistances each of magnitude 10Ω be connected in parallel, then equivalent resistance the combination will be

A. a) 10Ω

B. b) 40Ω

C. c) 2.5Ω

D. d) 5Ω

Answer:



Watch Video Solution

Very Short Answer Type Questions

1. What is the unit of electric charge ?



[Watch Video Solution](#)

2. What is the unit of electromotive force ?



[Watch Video Solution](#)

3. Write down the practical unit of resistance.





[Watch Video Solution](#)

4. What is the value of the smallest charge present in nature ?



[Watch Video Solution](#)

5. What is the CGS unit of resistivity ?



[Watch Video Solution](#)

6. Define electric power.



Watch Video Solution

7. Define BOT unit.



Watch Video Solution

8. Mention one characteristics of fuse wire.



Watch Video Solution

9. How the direction of rotation of Barlow's wheel can be changed?



[Watch Video Solution](#)

10. What is the SI unit of current ?



[Watch Video Solution](#)

Fill In The Blanks

1. $1 \text{ BOT} = 3.6 \times \text{_____ J}$.



Watch Video Solution

2. If length of a conductor increases the resistance _____.



Watch Video Solution

Short Answer Type Questions

1. How the resistance of conductor depends on its length and area of cross-section ?



Watch Video Solution

2. Why the term 220 V-100W is written on an electric bulb ?



Watch Video Solution

3. Why nichrome wire is used in electric heater ?



Watch Video Solution

4. Write down Ampere's swimming rule.



Watch Video Solution

5. Write down Flemming's left hand rule.



Watch Video Solution

6. Write down the Faraday's laws of electromagnetic induction.



[Watch Video Solution](#)

7. Mention the advantages of AC over DC.



[Watch Video Solution](#)

8. Resistance of a wire of circular cross-section is 2Ω . If both the length and radius of cross-section of the wire be halved, then what will be the resistance of the wire ?



[Watch Video Solution](#)

Long Answer Type Questions

1. Why fuse is used in electric lines? ?



[Watch Video Solution](#)

2. State Joule's laws of heating effect of current.



[Watch Video Solution](#)

3. In a school there are 10 electric fans each of 40 W runs for 5 hours a day, 5 electric lamps each of 60 W runs for 3 hour daily. If the cost of each unit of electricity be Rs. 5, then calculate the monthly cost for electricity



[Watch Video Solution](#)

4. Find the equivalent resistance between A and B in the circuit shown in the fig. (a).



[View Text Solution](#)

5. If two bulbs of powers 60 W and 40 W be joined in series with 220 V main line, then which bulb will glow brighter and why ?



[Watch Video Solution](#)

