# Electricity

Standard difficulty · 20 questions · 40 marks · Time: 36 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

## Section A — Choose the correct answer — 8 × 1 = 8 marks

**1.** A charge of 88 C flows through a wire in 22 s. The current is:
**(a)** 0.25 A **(b)** 1,936 A **(c)** 5 A **(d)** 4 A

**2.** A current of 10 A flows through a 37 Ω resistor. The potential difference across it is:
**(a)** 370 V **(b)** 47 V **(c)** 3.7 V **(d)** 3700 V

**3.** A potential difference of 8 V drives a current of 4 A through a conductor. Its resistance is:
**(a)** 4 Ω **(b)** 32 Ω **(c)** 6 Ω **(d)** 2 Ω

**4.** Resistors of 27 Ω, 4 Ω and 15 Ω are connected in series. The equivalent resistance is:
**(a)** 1620 Ω **(b)** 2.83 Ω **(c)** 27 Ω **(d)** 46 Ω

**5.** The SI unit of electric current is:
**(a)** coulomb (C) **(b)** volt (V) **(c)** ampere (A) **(d)** ohm (Ω)

**6.** Resistors of 9 Ω and 18 Ω are connected in parallel. The equivalent resistance is:
**(a)** 6 Ω **(b)** 13.5 Ω **(c)** 27 Ω **(d)** 9 Ω

**7.** An appliance has a resistance of 6 Ω and works at 54 V. Its power is:
**(a)** 54 W **(b)** 972 W **(c)** 486 W **(d)** 63 W

**8.** Assertion (A): A 11 Ω and a 16 Ω resistor in series have an equivalent resistance of 27 Ω.
Reason (R): Electric current is the rate of flow of charge.
**(a)** Both A and R are true, and R is the correct explanation of A.
**(b)** Both A and R are true, but R is not the correct explanation of A.
**(c)** A is true, but R is false.
**(d)** A is false, but R is true.

## Section B — Short answer — 8 × 2 = 16 marks

**9.** How many electrons make up a charge of 19 C? (Charge on an electron = $1.6 \times 10^{-19}$ C)

**10.** Find the resistance of a wire 1 m long with a cross-section of 2 $mm^2$, made of a material of resistivity $10 \times 10^{-8}$ Ω m. (Give the answer to 2 decimal places where needed.)

**11.** A 104 V battery is connected to 13 Ω and 13 Ω resistors in series. Find the current and the potential difference across each resistor.

**12.** Resistors of 9 Ω and 18 Ω are connected in parallel across a 162 V supply. Find the current in each and the total current.

**13.** A current of 7 A flows through a 39 Ω resistor for 293 s. Find the heat produced.

**14.** A 750 W appliance runs 2 hours a day for 30 days. Find the energy used and its cost at Rs 8 per kWh.

**15.** A 17 Ω resistor is connected in series with a parallel pair of 15 Ω and 30 Ω. Find the total resistance.

**16.** An appliance is rated 1,100 W at 220 V. Find the current it draws.

## Section C — Word problems — 4 × 4 = 16 marks

**17.** An electric kettle is rated 1,320 W at 220 V. Find the current it draws and its resistance. (Give the answer to 2 decimal places where needed.)

**18.** 9 bulbs of 100 W each are connected in parallel to a 220 V supply. Find the total current drawn. (Give the answer to 2 decimal places where needed.)

**19.** A heater of resistance 22 Ω is connected to a 220 V supply for 41 minutes. Find the heat produced, in joules and in kWh. (Give the answer to 2 decimal places where needed.)

**20.** Two bulbs are rated 40 W and 200 W, both at 220 V. Find their resistances. Which has the higher resistance? (Give the answer to 2 decimal places where needed.)

**Want another sheet on this chapter?** In the Ambiful Worksheets app every sheet is new, with its answer key, and your child never gets the same question twice.
Scan the code to get the free app, or open **worksheets.ambiful.com/get**

# Answer key

Electricity · AW-10S-ELE-2026-V1 · For parents — fold back or tear off before handing the sheet to your child.

| Q | Answer | Working |
|---|---|---|
| 1 | **(d) 4 A** | I = Q ÷ t = 88 ÷ 22 |
| 2 | **(a) 370 V** | V = IR = 10 × 37 |
| 3 | **(d) 2 Ω** | R = V ÷ I = 8 ÷ 4 |
| 4 | **(d) 46 Ω** | add them: 27 + 4 + 15 |
| 5 | **(c) ampere (A)** | — |
| 6 | **(a) 6 Ω** | 1/R = 1/9 + 1/18, so R = 9 × 18 ÷ 27 = 6 |
| 7 | **(c) 486 W** | $P = V^2/R = 54^2 \div 6$ |
| 8 | **(b) Both A and R are true, but R is not the correct explanation of A.** | A is true: in series, R = 11 + 16 = 27. R is true but does not explain A. |
| 9 | **$1.1875 \times 10^{20}$** | $19 \div (1.6 \times 10^{-19}) = 1.1875 \times 10^{20}$ |
| 10 | **0.05 Ω** | $R = \rho L/A = (10 \times 10^{-8} \times 1) \div (2 \times 10^{-6})$ |
| 11 | **4 A; 52 V and 52 V** | I = 104 ÷ (13 + 13); $V_1 = 4 \times 13$, $V_2 = 4 \times 13$ |
| 12 | **18 A and 9 A; total 27 A** | I = V ÷ R for each branch: 162 ÷ 9, 162 ÷ 18 |
| 13 | **559,923 J** | $H = I^2Rt = 7^2 \times 39 \times 293$ |
| 14 | **45 kWh; Rs 360** | 750 × 2 × 30 ÷ 1000 kWh |
| 15 | **27 Ω** | parallel pair = 15 × 30 ÷ 45 = 10; add 17 |
| 16 | **5 A** | I = P ÷ V = 1100 ÷ 220 |
| 17 | **6 A; 36.67 Ω** | I = P ÷ V = 1320 ÷ 220; $R = V^2 \div P = 220^2 \div 1320$ |
| 18 | **4.09 A** | total power 900 W; I = 900 ÷ 220 |
| 19 | **5,412,000 J; 1.50 kWh** | $P = V^2/R$ = 2,200 W; H = P × 2460 s; 1 kWh = $3.6 \times 10^6$ J |
| 20 | **1,210 Ω and 242 Ω; the 40 W bulb** | $R = V^2/P$: $220^2 \div 40$ and $220^2 \div 200$; the lower-power bulb has more resistance |



Ambiful Worksheets · worksheets.ambiful.com · Not affiliated with CBSE / NCERT 