

Parishram (2025)

Physics

DPP: 4

Current Electricity

Q1 Emf of a cell is

- (A) the maximum potential difference between the terminals of a cell when no current is drawn from the cell
- (B) the force required to push the electrons in the circuit
- (C) the potential difference between the positive and negative terminal of a cell in a closed circuit
- (D) less than terminal potential difference of the cell

Q2 To draw a maximum current from a combination of cells, how should the cells be grouped?

- (A) Parallel
- (B) Series
- (C) Mixed grouping
- (D) Depends upon the relative values of internal and external resistances

Q3 Under what condition will the strength of current in a wire of resistance R be the same for connection in series and in parallel of n identical cells each of the internal resistance r ? When

- (A) $R = nr$
- (B) $R = r/n$
- (C) $R = r$
- (D) $R \rightarrow \infty, r \rightarrow 0$

Q4 If n cells each of emf e and internal resistance r are connected in parallel, then the total emf and internal resistances will be

- (A) $\varepsilon, \frac{r}{n}$
- (B) ε, nr

- (C) $n\varepsilon, \frac{r}{n}$
- (D) $n\varepsilon, nr$

Q5 The Kirchhoff's second law ($\sum iR = \sum E$), where the symbols have their usual meanings, is based on

- (A) conservation of momentum
- (B) conservation of charge
- (C) conservation of potential
- (D) conservation of energy

Q6 Match the column I and Column II

- | Column I | Column II |
|------------------------------------|---|
| (A) Ohm's law is applicable to | (1) Metals |
| (B) Ohm's law is not applicable to | (2) Greater resistivity |
| (C) Alloys have | (3) Diodes, electrolytes semiconductors |
| (D) A heat sensitive resistor | (4) Thermistors |
- (A) (A) \rightarrow (2); (B) \rightarrow (1); (C) \rightarrow (3); (D) \rightarrow (4)
- (B) (A) \rightarrow (1); (B) \rightarrow (3); (C) \rightarrow (2); (D) \rightarrow (4)
- (C) (A) \rightarrow (4); (B) \rightarrow (3); (C) \rightarrow (2); (D) \rightarrow (1)
- (D) (A) \rightarrow (2); (B) \rightarrow (1); (C) \rightarrow (4); (D) \rightarrow (3)

Q7

	Column-I		Column-II
(A)	Junction rule	(1)	Another statement of Ohm's law



(B)	Loop rule	(2)	Magnitude of drift velocity per unit electric field
(C)	$\vec{j} = \sigma \vec{E}$	(3)	Based on law of conservation of charge
(D)	Mobility	(4)	Based on law of conservation of energy

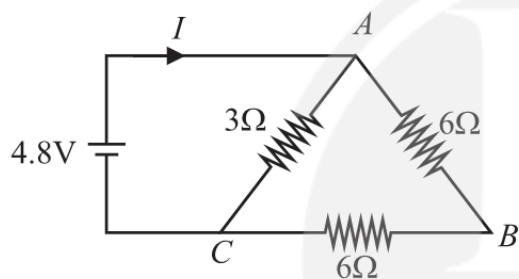
(A) (A) \rightarrow (1); (B) \rightarrow (2); (C) \rightarrow (3); (D) \rightarrow (4)

(B) (A) \rightarrow (1); (B) \rightarrow (3); (C) \rightarrow (2); (D) \rightarrow (4)

(C) (A) \rightarrow (4); (B) \rightarrow (2); (C) \rightarrow (1); (D) \rightarrow (3)

(D) (A) \rightarrow (3); (B) \rightarrow (4); (C) \rightarrow (1); (D) \rightarrow (2)

Q8 The current in the given circuit is



(A) 8.31 A

(B) 6.82 A

(C) 4.92 A

(D) 2 A



Answer Key

Q1 (A)

Q2 (D)

Q3 (C)

Q4 (A)

Q5 (D)

Q6 (B)

Q7 (D)

Q8 (D)



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