Q.1 If a non-ideal cell of emf *E* and internal resistance *r* is being discharged, then the terminal voltage (*V*) across the cell will be



Q.2 The storage battery of a car has an emf of **12 V**. If the internal resistance of the battery is **0**. **4** Ω , what is the maximum current that can be drawn from the battery?



Q.3 A battery of emf 10 V and internal resistance 3Ω is connected to a resistor. If the current in the circuit is 0.5 A, what is the resistance of the resistor and terminal voltage of the battery when the circuit is closed?



Q.4 For a cell, a graph is plotted between the potential difference **V** across the terminals of the cell and the current **I** drawn from the cell (figure). The emf and the internal resistance of the cell are **E** and **r** respectively. Then





Q.6 A battery consists of **n** number of identical cells having internal resistance connected in series. The terminals of the battery are short circuited and the current **I** is measured. Which of the following graphs shows correct relationship between **I** and **n**?



Q.7 In the circuit shown in figure $E_1 = E_2 = E_3 = 2 V$ and $R_1 = R_2 = 4 \Omega$. The current flowing between points A and B through battery E_2 is



(D) None of the above

Q.8 Find the current in the given circuit

(A) Zero



Q.9 A battery having emf $E_1 = 100 V$ and internal resistance $r = 0.5 \Omega$ is connected to a storage battery of emf $E_2 = 90 V$ and external resistance R as shown in figure. For what value of R no current will pass through storage battery E_2 ?



Q.10 For the circuit shown in the figure, the potential difference across each of the four batteries B_1 , B_2 , B_3 and B_4 respectively will be:

(A)4 V, 0 V, 8 V, 8 V **(B)**4 V, 0 V, 9 V, 6 V

(C)4 V, 1 V, 8 V, 7 V

(D)4 V, 0 V, 7 V, 1 V



ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10
Sol.	(C)	(C)	(D)	(B)	(A)	(D)	(B)	(B)	(B)	(D)