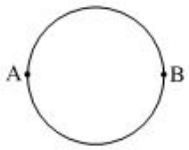
Parishram (2025)

Physics

DPP: 5

Current Electricity

Q1 A wire of resistance 12 Ω per metre is bent to form a complete circle of radius 10 cm. The resistance between any two of diameterically opposite points A and B as shown in the figure is:

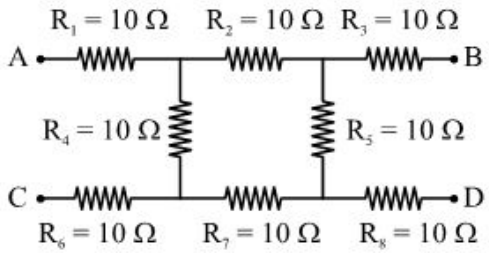


(A) $3\ \Omega$
(B) $6\ \Omega$
(C) $6\ \pi\Omega$
(D) $0.6\ \pi\Omega$

Q2 Two wires of the same metal have same length, but their cross-sections are in the ratio 3 : 1. They are joined in series. The resistance of thicker wire is 10 Ω. The total resistance of the combination will be:
(A) $5/2\ \Omega$
(B) $40/3\ \Omega$
(C) $40\ \Omega$
(D) $100\ \Omega$

Q3 Three resistances each of 4Ω are connected to form a triangle. The resistance between any two terminals is
(A) 12Ω
(B) 2Ω
(C) 6Ω
(D) $8/3\Omega$

Q4 What will be the equivalent resistance between the points A and D?

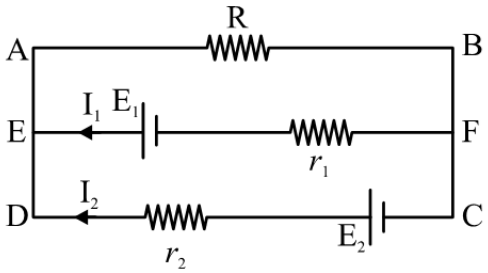


(A) $10\ \Omega$
(B) $20\ \Omega$
(C) $1.95\ \Omega$
(D) $2\ V$

Q5 The internal resistance of a cell of e.m.f. 2V is 0.1 Ω. It is connected to a resistance of 3.9Ω. The voltage across the cell will be :
(A) 0.5 V (B) 1.5 V
(C) 1.95 V (D) 2 V

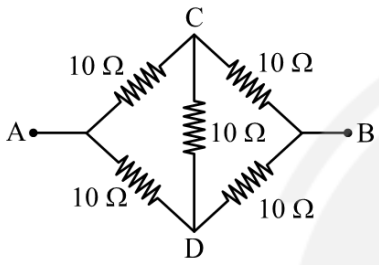
Q6 For a cell, the terminal potential difference is 2.2 V, when circuit is open and reduces to 1.8 V, when cell is connected to a resistance R = 5 Ω. The internal resistance of cell (r) is
(A) $10/9\ \Omega$
(B) $9/10\ \Omega$
(C) $11/9\ \Omega$
(D) $5/9\ \Omega$

Q7 Which of the following equations is a correct equation for the electrical circuit shown in the figure?



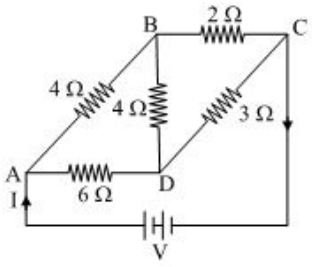
(A) $E_2 - I_2r_2 - E_1 - I_1r_1 = 0$
(B) $-E_2 - (I_1 + I_2)\,R + I_2r_2 = 0$
(C) $E_1 - (I_1 + I_2)\,R + I_1r_1 = 0$
(D) $E_1 - (I_1 + I_2)\,R - I_1r_1 = 0$

Q8 The effective resistance between points A and B in the given circuit A is



(A) 10 Ω
(B) 20 Ω
(C) 40 Ω
(D) 50 Ω

Q9 For the network shown in the figure, the value of the current I is:



(A) 9V/35 (B) 18 V/5
(C) 5V/9 (D) 5V/18

Q10 The resistance of each arm of a Wheatstone bridge is 10Ω. A resistance of 10Ω is connected in series with the galvanometer. Then, the equivalent resistance of the bridge across the battery will be:

(A) 10Ω (B) 15Ω
(C) 20Ω (D) 40Ω

Answer Key

Q1	(C)	Q6	(A)
Q2	(C)	Q7	(D)
Q3	(D)	Q8	(A)
Q4	(C)	Q9	(D)
Q5	(C)	Q10	(A)