Foundation

UDAAN 2025

PHYSICS

DHA: 4

ELECTRICITY

Q1 What is the lowest total resistance that can be combination of four coils of resistance 4Ω, 8Ω, 12Ω and 24Ω ?

(A) 2Ω

(B) 1Ω

(C) $\frac{1}{2}\Omega$

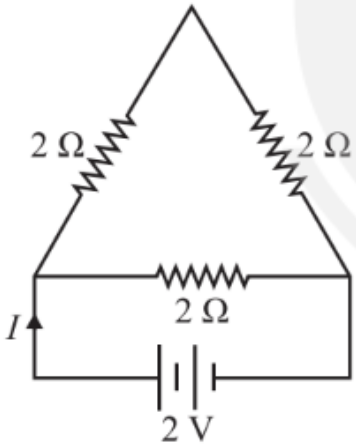
(D) 0.1Ω

Q2 An equilateral resistance is formed with each side having a resistance 6Ω, What is he resistance across any side of the triangle?

(A) 2Ω (B) 6Ω

(C) 4Ω (D) None of these

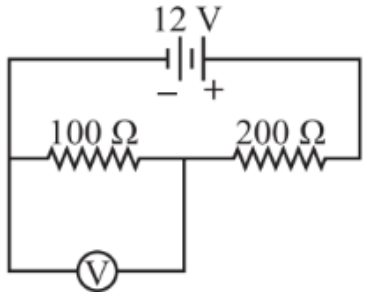
Q3 What is the current in the circuit shown (figure)?



(A) 1.5 A (B) 0.5 A

(C) 2.5 A (D) None of these

Q4 In the circuit shown in figure. The reading of the voltmeter V will be

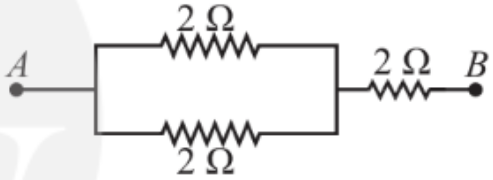


(A) 4 V (B) 2 V

(C) 6 V (D) 3 V

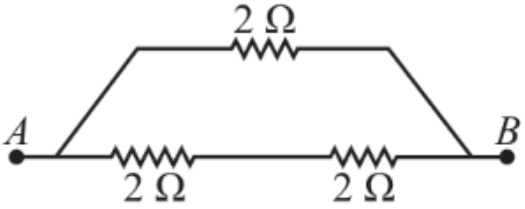
Q5 Which of the following networks yields maximum effective resistance between A and B

(A)

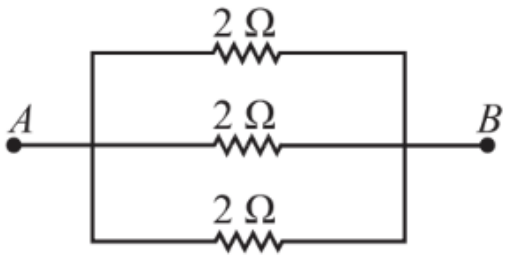


(B)

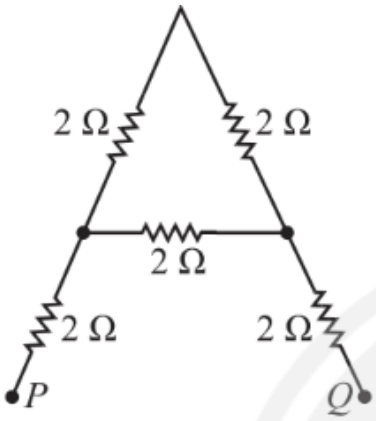
(C)



(D)

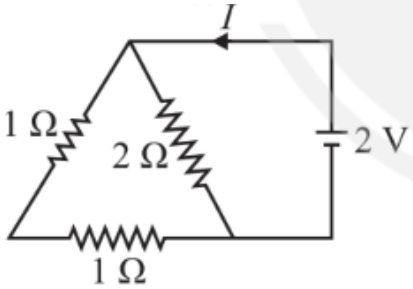


Q6 What is the resistance between P and Q?



(A) $\frac{3}{4}\Omega$
(B) $\frac{4}{3}\Omega$
(C) $\frac{16}{3}\Omega$
(D) infinity

Q7 What is the current (I) in the circuit?



(A) $\frac{1}{2}$ A
(B) 2 A
(C) $\frac{3}{2}$ A
(D) None of these

Q8 The resistance of a semiconductor material (germanium of Silicon) ____ with rise in temperature.
(A) Increases
(B) Decreases
(C) remains the same
(D) First increases then decreases

Answer Key

Q1	(A)
Q2	(C)
Q3	(A)
Q4	(A)
Q5	(A)
Q6	(C)
Q7	(B)
Q8	(B)

Hints & Solutions

Q1 **Text Solution:**
In parallel combination equivalent resistance is always less than the individual resistance.

Video Solution:

Q2 **Text Solution:**
Use concept of series and parallel combination of resistance.

Video Solution:

Q3 **Text Solution:**
Use concept of series and parallel combination of resistance and then use formula [V = IR]

Video Solution:

Q4 **Text Solution:**
Find current across 100 Ω resistance and then use formula [V = IR] for finding the voltmeter reading.

Video Solution:

Q5 **Text Solution:**
Use concept of series and parallel combination of resistance.

Video Solution:

Q6 **Text Solution:**
Use concept of series and parallel combination of resistance.

Video Solution:

Q7 **Text Solution:**
Use concept of series and parallel combination of resistance and then use formula [V = IR]

Video Solution:

Q8 **Text Solution:**
The resistance of semiconductor decreases with rise in temperature.

Video Solution: