

JEE MAIN CURRENT ELECTRICITY — COMBINATION OF RESISTORS: SERIES AND PARALLEL — PYQS

Max. Marks: 44
Questions: 11

Section A (MCQ) — 10 questions

- Q.1** Two resistors of $200\ \Omega$ and $400\ \Omega$ are connected in series with a battery of 100 V . A bulb rated at 200 V , 100 W is connected across the $400\ \Omega$ resistance. The potential drop across the bulb is _____ V .

[JEE Main 2026 (Online) 2nd April Evening Shift]

- (1) 25 (2) 50 (3) 66.6 (4) 100

Scan or tap for the full solution



- Q.2** Two resistors of $100\ \Omega$ each are connected in series with a 9 V battery. A voltmeter of $400\ \Omega$ resistance is connected to measure the voltage drop across one of the resistors. The voltmeter reading is _____ V .

[JEE Main 2026 (Online) 24th January Morning Shift]

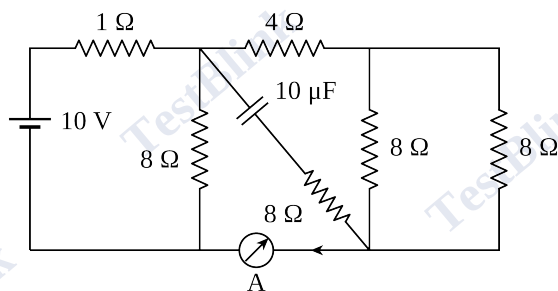
- (1) 3 (2) 2 (3) 4 (4) 4.5

Scan or tap for the full solution



- Q.3** The reading of the ammeter (A) in steady state in the following circuit (assuming negligible internal resistance of the ammeter) is _____ A .

[JEE Main 2026 (Online) 24th January Evening Shift]



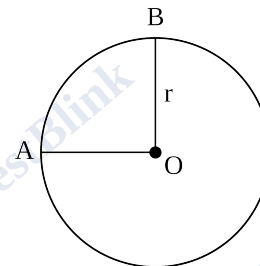
- (1) $1/2$ (2) 1 (3) 2 (4) 0

Scan or tap for the full solution



- Q.4** A wire of uniform resistance $\lambda\ \Omega/\text{m}$ is bent into a circle of radius r and another piece of wire with length $2r$ is connected between points A and B (AOB) as shown in figure. The equivalent resistance between points A and B is _____ Ω .

[JEE Main 2026 (Online) 23rd January Morning Shift]



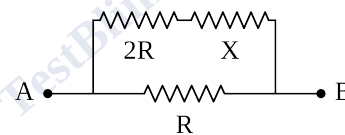
- (1) $(\pi + 1)2r\lambda$ (2) $\frac{6\pi\lambda r}{3\pi + 16}$
 (3) $\frac{3\pi\lambda r}{8}$ (4) $2\pi\lambda r$

Scan or tap for the full solution



- Q.5** Two known resistances of $R\ \Omega$ and $2R\ \Omega$ and one unknown resistance $X\ \Omega$ are connected in a circuit as shown in the figure. If the equivalent resistance between points A and B in the circuit is $X\ \Omega$, then the value of X is _____ Ω .

[JEE Main 2026 (Online) 21st January Evening Shift]



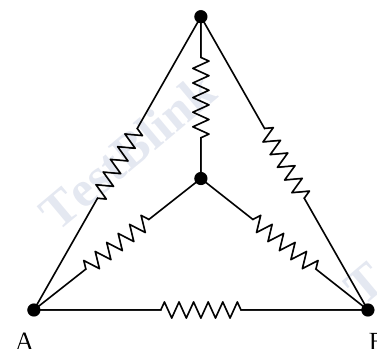
- (1) $2(\sqrt{3} - 1)R$ (2) R
 (3) $(\sqrt{3} - 1)R$ (4) $(\sqrt{3} + 1)R$

Scan or tap for the full solution



- Q.6** A wire of resistance R is bent into a triangular pyramid as shown in figure with each segment having same length. The resistance between points A and B is R/n . The value of n is :

[JEE Main 2025 (Online) 7th April Morning Shift]



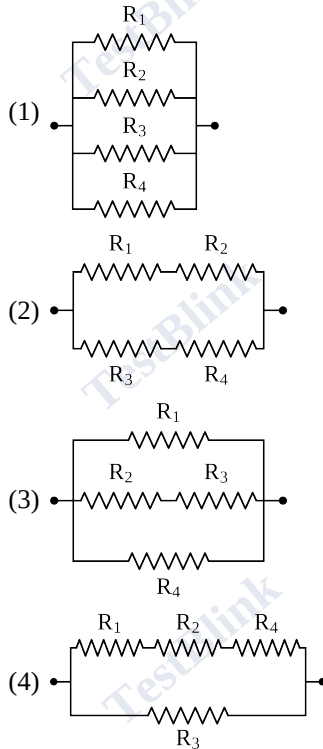
- (1) 16 (2) 10 (3) 12 (4) 14

Scan or tap for the
full solution



Q.7 From the combination of resistors with resistance values $R_1 = R_2 = R_3 = 5\ \Omega$ and $R_4 = 10\ \Omega$, which of the following combination is the best circuit to get an equivalent resistance of $6\ \Omega$?

[JEE Main 2025 (Online) 4th April Evening Shift]



Scan or tap for the
full solution



Q.8 A wire of length 25 m and cross-sectional area $5\ \text{mm}^2$ having resistivity of $2 \times 10^{-6}\ \Omega\ \text{m}$ is bent into a complete circle. The resistance between diametrically opposite points will be

[JEE Main 2025 (Online) 3rd April Morning Shift]

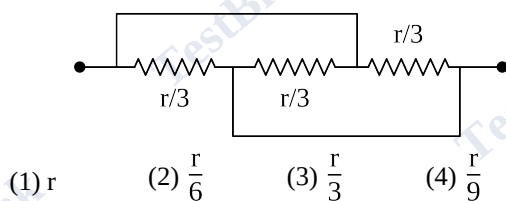
- (1) $100\ \Omega$ (2) $2.5\ \Omega$ (3) $12.5\ \Omega$ (4) $50\ \Omega$

Scan or tap for the
full solution



Q.9 Find the equivalent resistance between two ends of the following circuit

[JEE Main 2025 (Online) 28th January Morning Shift]



- (1) r (2) $\frac{r}{6}$ (3) $\frac{r}{3}$ (4) $\frac{r}{9}$

Scan or tap for the
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Q.10 A wire of resistance R is bent into an equilateral triangle and an identical wire is bent into a square. The ratio of resistance between the two end points of an edge of the triangle to that of the square is

[JEE Main 2025 (Online) 28th January Morning Shift]

- (1) $8/9$ (2) $9/8$ (3) $32/27$ (4) $27/32$

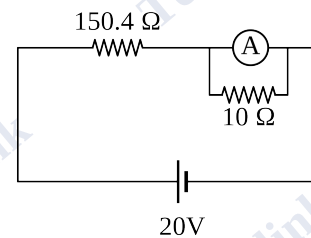
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Section B (Numerical) — 1 question

Q.11 In the figure shown below, a resistance of $150.4\ \Omega$ is connected in series to an ammeter A of resistance $240\ \Omega$. A shunt resistance of $10\ \Omega$ is connected in parallel with the ammeter. The reading of the ammeter is _____ mA.

[JEE Main 2025 (Online) 3rd April Morning Shift]



Scan or tap for the
full solution



ANSWER KEY

Section A (MCQ) — 10 questions

Ques.	1	2	3	4	5	6	7	8	9	10
Ans.	2	3	2	2	3	3	2	2	4	3

Section B (Numerical) — 1 question

Ques.	11									
Ans.	5									