PHYSICS

AAKASH INSTITUTE ENGLISH

Mock Test27

Example

1. A wire of resistance 20Ω is bent to form a complete circle. The resistance between two

diametrically opposite points A and B as shown in the figure, is 

A. 5Ω

B. 20Ω

C. 10Ω

D. 15Ω

Answer: A

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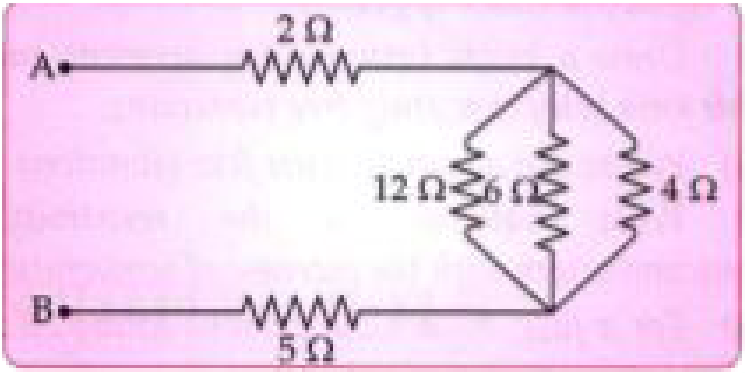
2. Find the equivalent resistance between points A and B.



A. Zero

B. $R_1 + R_3$

C. R_2 + R_3`

D. $R_1 + \frac{R_2 \cdot R_3}{R_2 + R_3}$

Answer: A

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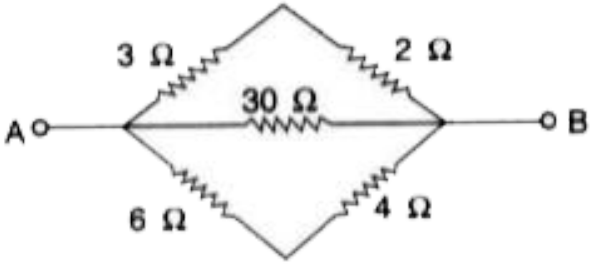
3. Calculate the equivalent resistance between the points A and B in Fig.



A. $\frac{2}{3}\Omega$

B. $\frac{4}{3}\Omega$

C. 1Ω

D. 2Ω

Answer: A

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4. In the given figure, equivalent resistance between points P and Q is 

A. $\frac{1}{3}\Omega$

B. $\frac{4}{3}\Omega$

C. $\frac{2}{3}\Omega$

D. 2Ω

Answer: B

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5. If the ammeter in given circuit reads 1 A, then resistance R is 

A. 4Ω

B. 2Ω

C. 3Ω

D. 1Ω

Answer: A

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6. If the power dissipated in the 27Ω resistor in the circuit shown is 108 watt, the potential difference across the 4Ω resistor is

A. 20volt

B. 10 volt

C. 5 volt

D. 4 volt

Answer: A

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7. The resistance between the lerminal points P and Q of the given infinitely long circuit will

be

A. $2\left(\sqrt{3}-1\right)\Omega$

B. $2\left(\sqrt{3}+1\right)\Omega$

C. $\left(\sqrt{3}-1\right)\Omega$

D. $\left(\sqrt{3}+1\right)\Omega$

Answer: B

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8. A battery of EMF 10 V, with internal resistance 1Ω is being charged by a 120 V d.c. supply using a series resistance of 10Ω. The terminal voltage of the battery is

A. 20 V

B. 10 V

C. Zero

D. 30 V

Answer: A

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9. A battery of EMF E produces currents 4 A and 3 A when connected to external resistance 1Ω and 2Ω respectively. The internal resistance of the battery is

A. 0.5Ω

B. 2Ω

C. 1.5Ω

D. 1Ω

Answer: B

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10. A 5 V battery with internal resistance 1Ω and a 2 V battery with internal resistance 0.5Ω are connected to a 3Ω resistor as shown in the figure.The current in the 3Ω resistor is

A. 0.1 A, A to B

B. 0.1 A, B to A

C. 0.01A, A to B

D. 0.01 A, B to A

Answer: B

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11. n identical cells each of e.m.f. E and internal resistance r are connected in series. An external resistance R is connected in series to this combination. The current through R is

A. $\frac{nE}{R+nr}$

B. $\frac{nE}{nR+r}$

C. $\frac{E}{R+nr}$

D. $\frac{nE}{R+r}$

Answer: A

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12. Two sources of equal emf are connected to an external resistance R. The internal resistances of the two sources are R_1 and

$R_2, (R_2 > R_1)$ If the potential difference across the source having internal resistance R_2 is zero then :

A. 1Ω

B. $\frac{2}{3}\Omega$

C. 2Ω

D. 6Ω

Answer: A

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13. A cell of internal resistance r drivers current through an external resistance R. The power delivered by the to the external resistance will be maximum when:

A. The cell supplies a power EI

B. The heat is produced in R at the rate = EI

C. The heat is produced in R at the rate = $(EI)\frac{R}{R+r}$

D. The heat is produced in cell at the rate = $(EI)\frac{r}{R+r}$

Answer: B

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14. To get maximum current through a resistance of 2.5Ω, one can use m rows of cells, each row having n cells. The internal resistance of each cell is 0.5Ω what are the values of n and m, if the total number of cells is 45.

A. 3, 15

B. 5, 9

C. 9, 5

D. 15, 3

Answer: D

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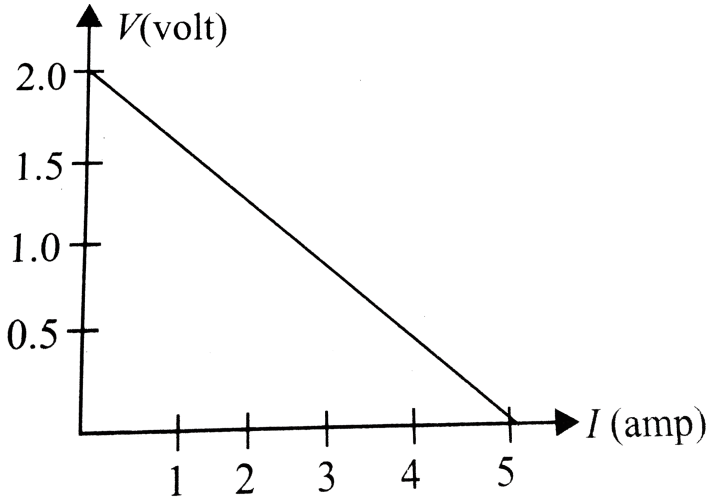
15. For a cell, a graph is plotted between the potential difference V across the terminals of the cell and the current I drawn the cell. The emf and the internal resistance of the cell are

E and r, respectively. Then



A. E = 2 V, $r = 0.5\Omega$

B. E= 2 V, $r = 0.4\Omega$

C. Egt 2 V, $r = 0.5\Omega$

D. E gt 2 V, $r = 0.4\Omega$

Answer: B

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16. If electric bulbs having resistances in the ratio 2 : 3 are connected in parallel to a voltage sources of 220 V. The ratio of the power dissipated in them is

A. 2: 3`

B. 3 : 2 `

C. 1 : 1 `

D. 2: 5 `

Answer: B

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17. Two bulbs $100W, 250V$ and $200W, 250V$ are connected in parallel across a $500V$ line. Then-

A. 60 W bulb will be fused

B. 120 W bulb will be fused

C. NO bulb will be fused

D. Both bulbs will be fused

Answer: D

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18. Fill in the blanks :

	Volume of cuboid	*Length*	*Breadth*	*Height*
(*i*)	90 cm^3	...	5 cm	3 cm
(*ii*)	840 cm^3	15 cm	...	7 cm
(*iii*)	62·5 m^3	10 m	5 m	...

A. $4\Omega, 12\Omega$

B. $4\Omega, 9\Omega$

C. $9\Omega, 4\Omega$

D. $9\Omega, 9\Omega$

Answer: C

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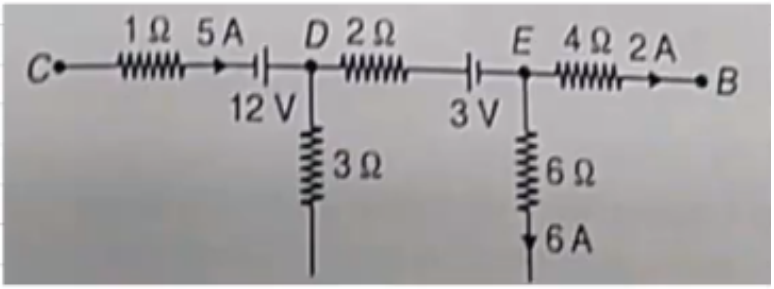
19. The following figure shows a part of a circuit,the potential difference between C and

$B(V_C - V_B)$ is



A. + 3 V `

B. + 6 V`

C. + 9 V `

D. -9 V `

Answer: C

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20. In the given circuit. If the potential at A is 95 V, then the potential of B is 

A. 12 V

B. 19 V

C. 25 V

D. 5 V

Answer: B

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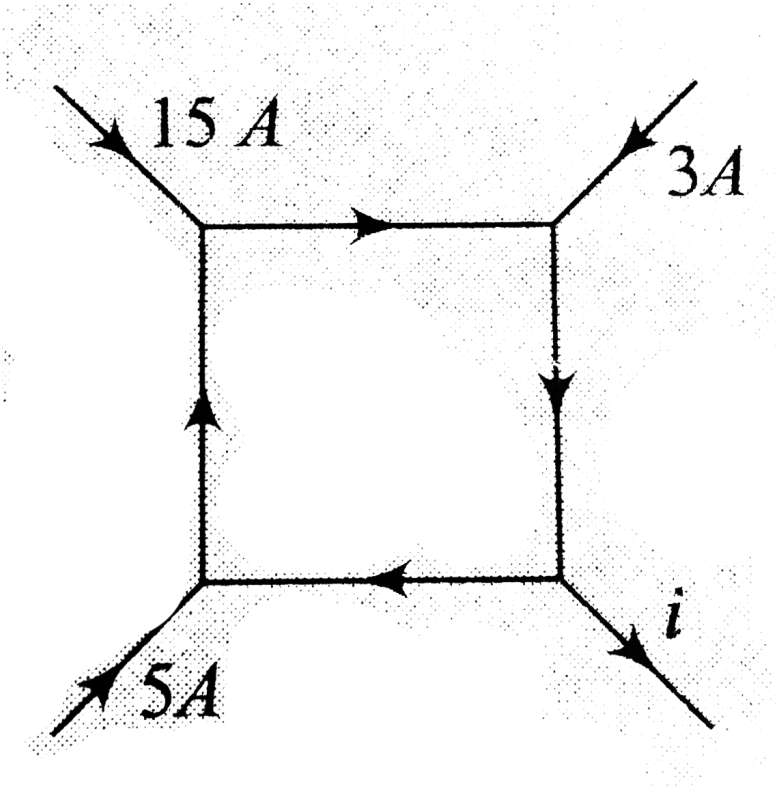
21. Shown is a network of currents. The magnitude of the current is also shown there. Find the current i.



A. 1 A `

B. 4 A`

C. 8 A `

D. 10 A `

Answer: D

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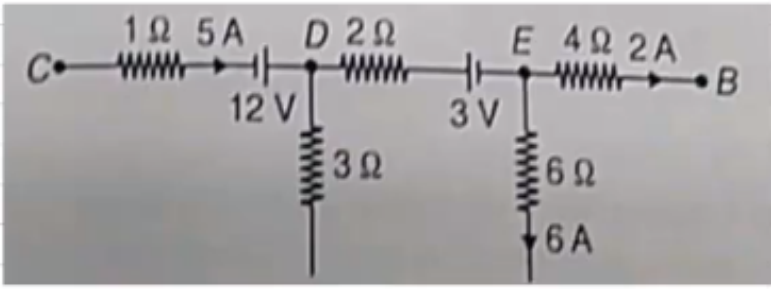
22. The following figure shows a part of a circuit,the potential difference between C and

$B(V_C - V_B)$ is



A. 10 V

B. 5 V

C. 15 V

D. 7.5 V

Answer: B

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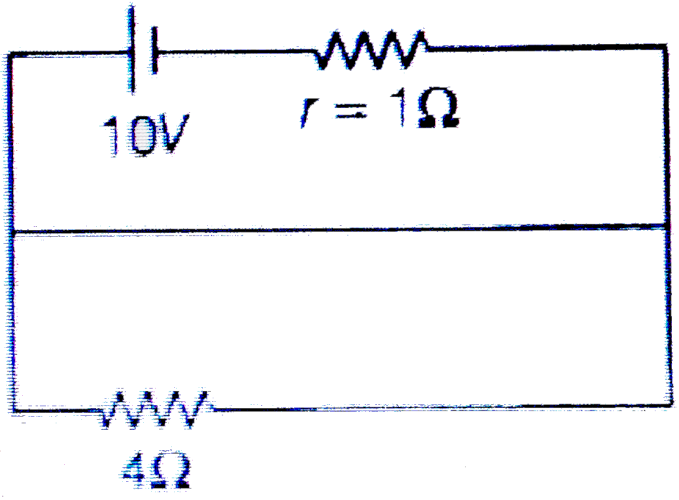
23. Potential different across the terminals of the battery shown in figure is



A. 8 V

B. 10 V

C. 5 V

D. 0 V

Answer: D

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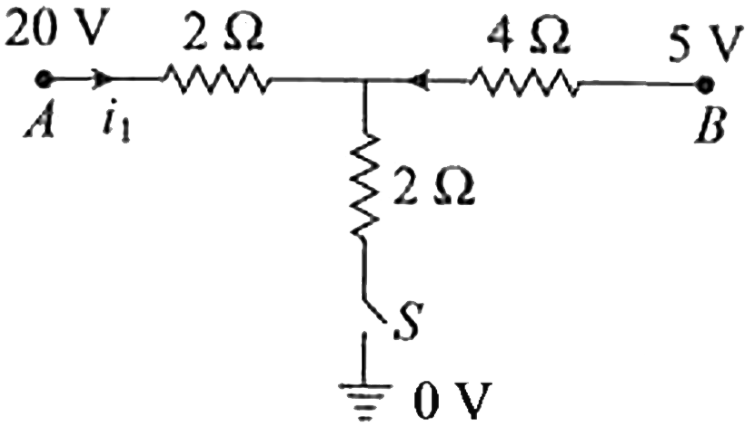
24. As the switch S is closed in the circuit shown in figure, current passed through it is



A. 7.5 V

B. 3 V

C. 4.5 V

D. 6.5 V

Answer: C

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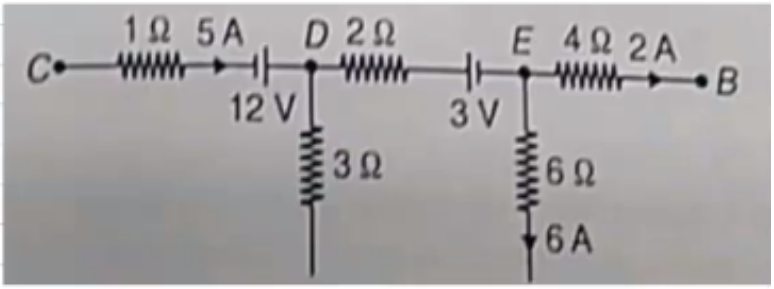
25. The following figure shows a part of a circuit,the potential difference between C and

$B(V_C - V_B)$ is



A. 10 V

B. 13 V

C. 20 V

D. 15 V

Answer: C

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