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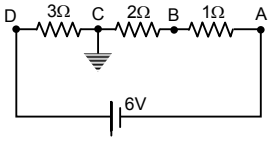
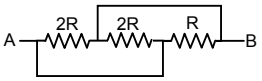
CONTINUED FROM SAKSHI VIDYA (09.01.2010)
CURRENT ELECTRICITY

11. For the circuit shown in figure, the potentials of point A, B, C and D are V_A, V_B, V_C and V_D respectively. Then



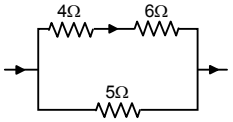
1) $V_A = 1V, V_B = 2V, V_C = 0\ V, V_D = -2V$
2) $V_A = 3V, V_B = -2V, V_C = 0\ V, V_D = 3V$
3) $V_A = -3V, V_B = -2V, V_C = 0\ V, V_D = 3V$
4) $V_A = 3V, V_B = 2V, V_C = 0\ V, V_D = -2V$

12. The equivalent resistance between points A and B of the circuit given below is



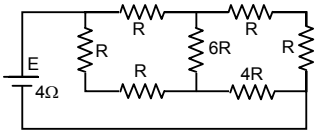
1) R 2) R/2
3) 2R
4) R/3

13. In the circuit shown in figure the heat produced in the 5Ω resistor due to the current flowing through it is 10 calories per second. The heat generated in the 4Ω resistor is



1) 1 cal/s
2) 2 cal/s
3) 3 cal/s
4) 4 cal/s

14. A battery of internal resistance 4Ω is connected to the network of resistances as shown. In order that the maximum power can be delivered to the network, the value of R in Ω should be

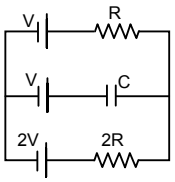


1) 4/9 2) 2
3) 8/3 4) 18

15. A steady current flows in a metallic conductor of non-uniform cross-section. The quantity/quantities constant along the length of the conductor is/are
1) current, electric field and drift speed 2) drift speed only
3) current and drift speed 4) current only

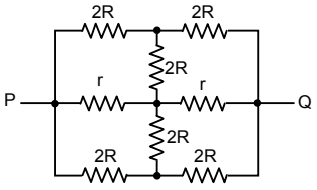
16. A wire of length L and 3 identical cells of negligible internal resistances are connected in series. Due to the current, the temperature of the wire is raised by ΔT in a time t. A number N of similar cells is now connected in series with a wire of the same material and cross-section but of length 2L. The temperature of the wire is raised by the same amount ΔT in the same time. The value of N is
1) 4 2) 6 3) 8 4) 9

17. In the given circuit, with steady current, the potential drop across the capacitor must be



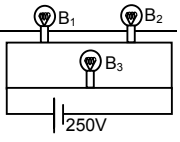
1) V
2) V/2
3) V/3
4) 2V/3

18. The effective resistance between points P and Q of the electric circuit shown in the figure is



1) $\frac{2Rr}{R+r}$ 2) $\frac{8R(R+r)}{3R+r}$
3) 2r + 4R
4) $\frac{5R}{2}+2r$

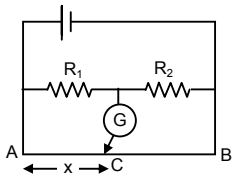
19. A 100 W bulb B_1, and two 60 W bulbs B_2 and B_3, are connected to a 250 V source, as shown



in the figure. Now W_1, W_2 and W_3 are the output powers of the bulbs B_1, B_2 and B_3 respectively. Then

1) $W_1 > W_2 = W_3$
2) $W_1 > W_2 > W_3$
3) $W_1 < W_2 = W_3$
4) $W_1 < W_2 < W_3$

20. In the shown arrangement of the experiment of the meter bridge if AC corresponding to null deflection of galvanometer is x, what would be its value if the radius of the wire AB is doubled?



1) x
2) x/4
3) 4x
4) 2x

Key :

11) 3, 12) 2, 13) 2, 14) 2, 15) 4, 16) 2, 17) 3, 18) 1, 19) 4, 20) 1