

DPP

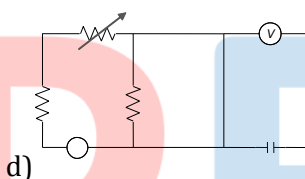
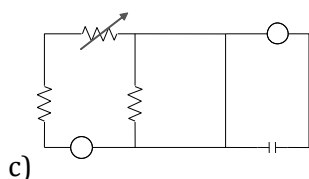
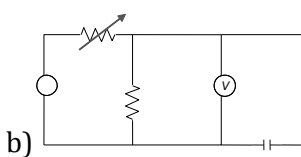
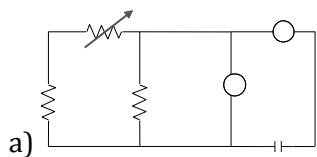
DAILY PRACTICE PROBLEMS

CLASS : XIITH
DATE :

SUBJECT : PHYSICS
DPP NO. : 2

Topic :- Current Electricity

1. Which of the following set up can be used to verify the Ohm's law?



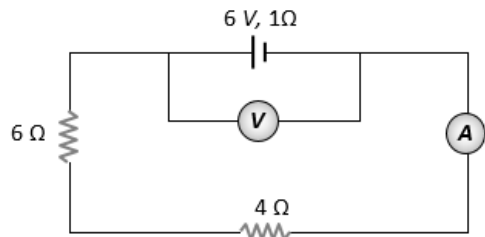
2. The resistance of a galvanometer is 25 ohm and it requires $50 \mu\text{A}$ for full deflection. The value of the shunt resistance required to convert it into an ammeter of 5 amp is

- a) $2.5 \times 10^{-4} \text{ ohm}$ b) $1.25 \times 10^{-3} \text{ ohm}$ c) 0.05 ohm d) 2.5 ohm

3. The resistivity of a potentiometer wire is $40 \times 10^{-8} \text{ ohm} \cdot \text{m}$ and its area of cross-section is $8 \times 10^{-6} \text{ m}^2$. If 0.2 amp current is flowing through the wire, the potential gradient will be

- a) 10^{-2} volt/m b) 10^{-1} volt/m c) $3.2 \times 10^{-2} \text{ volt/m}$ d) 1 volt/m

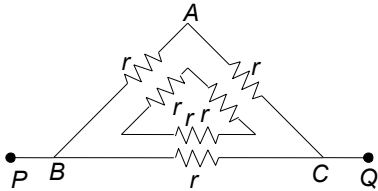
4. In the circuit shown here, the readings of the ammeter and voltmeter are



- a) $6 \text{ A}, 60 \text{ V}$
b) $0.6 \text{ A}, 6 \text{ V}$
c) $6/11 \text{ A}, 60/11 \text{ V}$
d) $11/6 \text{ A}, 11/60 \text{ V}$

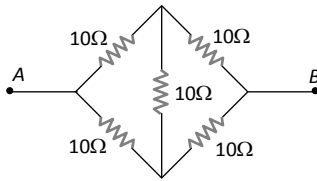
5. A thermocouple of negligible resistance produces an $e.m.f.$ of $40\mu V/^{\circ}C$ in the linear range of temperature. A galvanometer of resistance 10 ohm whose sensitivity is $1\mu A/div$, is employed with the thermocouple. The smallest value of temperature difference that can be detected by the system will be
- a) $0.1^{\circ}C$ b) $0.25^{\circ}C$ c) $0.5^{\circ}C$ d) $1^{\circ}C$

6. The resistance across R and Q in the figure.



- a) $\frac{r}{3}$ b) $\frac{r}{2}$ c) $2r$ d) $6r$
7. When a current I flows through a wire, the drift velocity of the electrons is v . When current $2I$ flows through another wire of the same material having double the length and double the area of cross-section, the drift velocity of the electrons will be
- a) $\frac{v}{8}$ b) $\frac{v}{4}$ c) $\frac{v}{2}$ d) v
8. A wire is broken in four equal parts. A packet is formed by keeping the four wires together. The resistance of the packet in comparison to the resistance of the wire will be
- a) Equal b) One fourth c) One eight d) $\frac{1}{16}$ th
9. In an electroplating experiment, $m\text{ gm}$ of silver is deposited when 4 ampere of current flows for 2 minute . The amount (in gm) of silver deposited by 6 ampere of current for 40 second will be
- a) 4 m b) $m/2$ c) $m/4$ d) 2 m
10. Which of the following relation is wrong?
- a) $1\text{ ampere} \times 1\text{ ohm} = 1\text{ volt}$ b) $1\text{ watt} \times 1\text{ sec} = 1\text{ joule}$
c) $1\text{ newton per coulomb} = 1\text{ volt per metre}$ d) $1\text{ coulomb} \times 1\text{ volt} = 1\text{ watt}$
11. To convert a 800 mV range *milli voltmeter* of resistance $40\ \Omega$ into a galvanometer of 100 mA range, the resistance to be connected as shunt is
- a) $10\ \Omega$ b) $20\ \Omega$ c) $30\ \Omega$ d) $40\ \Omega$

12. The effective resistance between points A and B is

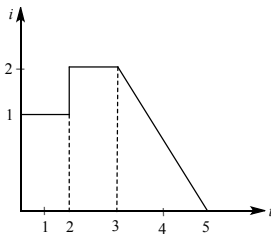


- a) 10Ω b) 20Ω
c) 40Ω d) None of the above three values

13. If the total emf in a thermocouple is a parabolic function expressed as $E = at + \frac{1}{2}bt^2$, which of the following relation does not hold good?

- a) Neutral temperature $t_n = -\frac{a}{b}$ b) Temperature of inversion, $t_i = -\frac{.2a}{b}$
c) Thermoelectric power $P = a + bt$ d) $t_n = \frac{a}{b}$

14. The plot represents the flow of current through a wire at three different times.



The ratio of charges flowing through the wire at different times is

- a) $2 : 1 : 2$ b) $1 : 3 : 3$ c) $1 : 1 : 1$ d) $2 : 3 : 4$

15. When the resistance of 9Ω is connected at the ends of a battery, its potential difference decreases from 40 volt to 30 volt . The internal resistance of the battery is

- a) 6Ω b) 3Ω c) 9Ω d) 15Ω

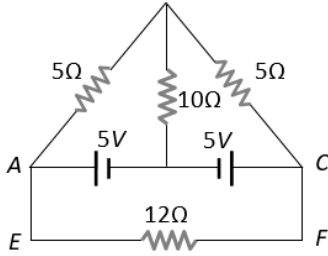
16. A cylindrical metal wire of length l and cross sectional area S , has resistance R , conductance G , conductivity σ and resistivity ρ . Which one of the following expressions for σ is valid

- a) $\frac{GR}{\rho}$ b) $\frac{\rho R}{G}$ c) $\frac{GS}{l}$ d) $\frac{Rl}{S}$

17. The heat developed in an electric wire of resistance R by a current I for a time t is

- a) $\frac{I^2Rt}{4.2}\text{cal}$ b) $\frac{I^2t}{4.2R}\text{cal}$ c) $\frac{I^2R}{4.2t}\text{cal}$ d) $\frac{Rt}{4.2I^2}\text{cal}$

18. In the circuit of adjoining figure the current through 12Ω resistor will be



- a) 1 A b) $\frac{1}{5}A$ c) $\frac{2}{5}A$ d) 0 A

19. An electric bulb is designed to draw power P_0 at voltage V_0 . If the voltage is V it draws a power P . Then

- a) $P = \left(\frac{V_0}{V}\right)^2 P_0$ b) $P = \left(\frac{V}{V_0}\right)^2 P_0$ c) $P = \left(\frac{V}{V_0}\right) P_0$ d) $P = \left(\frac{V_0}{V}\right) P_0$

20. When two resistances R_1 and R_2 are connected in series and parallel with 120 V line power consumed will be 25 W and 100 W respectively. Then the ratio of power consumed by R_1 to that consumed by R_2 will be

- a) 1 : 1 b) 1 : 2 c) 2 : 1 d) 1 : 4

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