

DPP

DAILY PRACTICE PROBLEMS

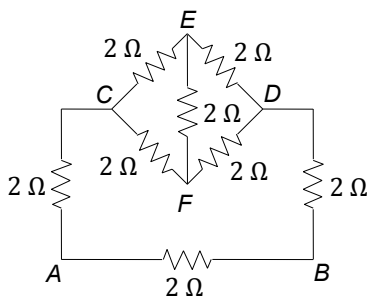
CLASS : XIITH
DATE :

SUBJECT : PHYSICS
DPP NO. : 5

Topic :- Current Electricity

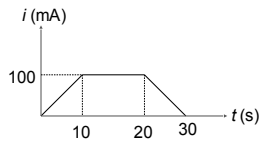
- In a copper voltmeter experiment, current is decreased to one-fourth of the initial value but is passed for four times the earlier duration. Amount of copper deposited will be
 - Same
 - One-fourth the previous value
 - Four times the previous value
 - $\frac{1}{16}$ th the previous value
- A strip of copper and another of germanium are cooled from room temperature to 80 K. The resistance of
 - Each of these increases
 - Each of these decreases
 - Copper strip increases and that of germanium decreases
 - Copper strip decreases and that of germanium increases

- The resistance of the following circuit figure between A and B is

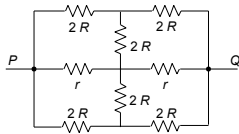


- $(3/2) \Omega$
 - 2Ω
 - 4Ω
 - 8Ω
- The amount of charge Q passed in time t through a cross-section of a wire is $Q = 5t^2 + 3t + 1$. The value of current at time $t = 5$ s is
 - 9A
 - 49A
 - 53A
 - None of these
 - Silver and copper voltmeter are connected in parallel with a battery of e.m.f. 12 V. In 30 minutes, 1g of silver and 1.8g of copper are liberated. The power supplied by the battery is ($Z_{Cu} = 6.6 \times 10^{-4} g/C$ and $Z_{Ag} = 11.2 \times 10^{-4} g/C$)
 - 24.13 J/sec
 - 2.413 J/sec
 - 0.2413 J/sec
 - 2413 J/sec

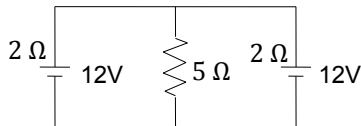
6. In a copper voltmeter, the mass deposited in 30 s is m gram. If the current-time graph is as shown in figure, the electrochemical equivalent of copper, in gC^{-1} is



- a) $0.1 m$ b) $0.6 m$ c) $\frac{m}{2}$ d) m
7. The electron in a hydrogen atom circles around the proton in 1.5941×10^{-18} s. The equivalent current due to motion of the electrons is
- a) 127.37 mA b) 122.49 mA c) 100.37 mA d) 94.037 Ma
8. The effective resistance between points P and Q of the electrical circuit shown in the figure.



- a) $\frac{2Rr}{R+r}$ b) $\frac{8R(R+r)}{(3R+r)}$ c) $2R+4r$ d) $\frac{5R}{2}+2R$
9. In a thermo-couple, one junction which is at 0°C and the other at $t^\circ\text{C}$ the emf is given by $E = at^2 - bt^2$. The neutral temperature is given by
- a) a/b b) $2a/3b$ c) $3a/2b$ d) $b/2a$
10. In the arrangement shown in figure, the current through 5Ω resistor is



- a) 2A b) Zero c) $\frac{12}{7}$ A d) 1A
11. A straight conductor of uniform cross-section carries a current i . If s is the specific charge of an electron, the momentum of all the free electrons per unit length of the conductor, due to their drift velocity only is
- a) is b) $\sqrt{i/s}$ c) i/s d) $(i/s)^2$
12. When a copper voltmeter is connected with a battery of emf 12V, 2 g of copper is deposited in 30 min. If the same voltmeter is connected across 6 V battery, the mass of copper deposited in 45 min would be
- a) 1 g b) 1.5 g c) 2 g d) 2.5 g

13. A resistor R and $2\mu\text{F}$ capacitor in series is connected through a switch to 200 V direct supplies. Across the capacitor is a neon bulb that lights up at 120 V. Calculate the value of R to make the bulb light up 5 s after the switch has been closed ($\log_{10} 2.5 = 0.4$)
- a) $1.7 \times 10^5 \Omega$ b) $2.7 \times 10^6 \Omega$ c) $3.3 \times 10^7 \Omega$ d) $1.3 \times 10^4 \Omega$
14. In above question, if length is doubled, the drift velocity
- a) Is doubled b) Is halved c) Remains same d) Becomes zero
15. Out of five resistances of resistance $R \Omega$ each 3 are connected in parallel and are joined to the rest 2 in series. Find the resultant resistance
- a) $\left(\frac{3}{7}\right)R \Omega$ b) $\left(\frac{7}{3}\right)R \Omega$ c) $\left(\frac{7}{8}\right)R \Omega$ d) $\left(\frac{8}{7}\right)R \Omega$
16. If the resistivity of an alloy is ρ' and that of constituent metal is ρ then
- a) $\rho' > \rho$ b) $\rho' < \rho$
c) $\rho' = \rho$ d) There is no simple relation between ρ and ρ'
17. The mass of a substance liberated when a charge ' q ' flows through an electrolyte is proportional to
- a) q b) $1/q$ c) q^2 d) $1/q^2$
18. The resistance of a discharge tube is
- a) Ohmic b) Non-ohmic c) Both (a) and (b) d) Zero
19. If the resistance of a conductor is 5Ω at 50°C and 7Ω at 100°C then the mean temperature coefficient of resistance of the material is
- a) $0.008/^\circ\text{C}$ b) $0.006/^\circ\text{C}$ c) $0.004/^\circ\text{C}$ d) $0.001/^\circ\text{C}$
20. The resistance of a galvanometer coil is R , then the shunt resistance required to convert it into an ammeter of range 4 times, will be
- a) $4R$ b) $R/3$ c) $R/4$ d) $R/5$