

Preparatory exam -1

Time : 90 min

Class 12

Physics

Mark :50

Part A

Answer any seven of the following

7*2=14

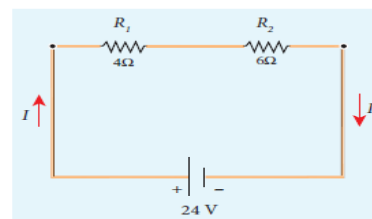
1. State Gauss law in electrostatics
2. Define “Electrostatic potential”. Give its unit.
3. Define electric field. Give its unit.
4. What is corona discharge (or) action at point?
5. Resistance of a material at 20°C and 40°C are $45\ \Omega$ and $85\ \Omega$ respectively. Find its temperature coefficient of resistivity.
6. Define temperature co-efficient of resistivity.
7. State the applications of seebeck effect
8. Distinguish between drift velocity and mobility.

Part B

Answer any seven of the following

7*3=21

9. Distinguish between Coulomb force and Gravitational force.
10. Derive an expression for energy stored in capacitor.
11. Obtain Gauss’s law from Coulomb’s law.
12. Give the applications and disadvantage of capacitors.
13. Calculate the equivalent resistance for the circuit which is connected to 24 V battery and also find the potential difference across each resistors in the circuit.
($R_1=4\ \text{ohm}$, $R_2=6\ \text{ohm}$)



14. Explain the determination of the internal resistance of a cell using voltmeter.
15. State and explain Kirchoff’s rules
16. Obtain the macroscopic form of ohm’s law from its microscopic form.

Part C

Answer the following

3*5=15

17. Obtain an expression for electric field due to an infinitely long charged wire.
OR
Explain in detail the principle, construction and working of Van de Graff generator.
18. Derive an expression for Electrostatic potential energy of a dipole placed in a uniform electric field
OR
Calculate the electric field due to a dipole on its axial line.
19. Obtain the condition for bridge balance in wheatstone’s bridge.
OR
Explain the determination of the internal resistance of a cell using potentiometer.