Sharjah Indian School Sharjah

**Assignment -1 for Class XII (Boys Wing)**

1. Two point charges repel each other with a force of 100N.One of the charges is increased by 10% and other is reduced by 10%.Find the new force of repulsion at the same distance.
2. There exists a uniform electric field in a region along the x-axis. The potential at the points A (2,0,0) and B(2.5,0,0) are found to be 3V and 4V.
   1. What is the magnitude of the electric field?
   2. Give the shape of equipotential surface at the point A(2,0,0)
3. Twelve wires of equal resistance ‘x’ are connected to form a cube. What will be the effective resistance between two diagonal ends?
4. If electric potential is -10 V at infinity and +5 V at some point P due to a point charge otherwise then what is the potential at point P?
5. Three wires of same material are connected in parallel with a battery. The ratio of their lengths is 2:3:6 and masses is 3:6:8. Find the ratio of the current in each branch of the circuit.
6. If a conducting wire is stretched to make it 0.3% longer, what is the percentage change in its resistance?
7. T h r e e b o dies P, Q and R are charged. If P and Q repel each other and P attracts R, what is the nature of force between Q and R?
8. A parallel combination of three resistances draws a current of 7.5A from a 30V battery. If two of the resistances are 10 Ω and 12Ω, find the value of the third resistance.
9. What happens to drift velocity of electrons and the resistance if the length of a conductor is doubled, keeping potential difference unchanged?
10. Three charges –q, Q and –q are placed at equal distances on a straight line. If the total potential energy of the system of three charges is zero, then what is the ratio Q/q?
11. If electric field intensity E equals zero at a given point, will electric potential V equal to zero at that point? Give one example to prove your answer.
12. All the seven arms of the electrical network shown below have equal lengths and equal resistance. Show that if a current I, enters the network at point A, and leaves at point F, the current in the arm CD is I / 5.