



## JYOTI PUBLIC SCHOOL DHORKA

Holiday Homework  
ASSIGNMENT, (2018-19)

**CLASS – 12<sup>th</sup>**

**SUB-Physics**

### General Instructions:-

- ★ All questions are compulsory.
- ★ Students are required to do this Holiday home work / Assignment in A4 Size paper.

#### Q1. Draw an equipotential surface:

- In a uniform electric field.
- For a point charge  $< 0$

Q2. How will the capacitance of capacitor change when a di- electric slab is introduced b/w the plates of a capacitor.

Q3. How does the resistivity of a conductor depend upon the number density of free- electrons and temperature.

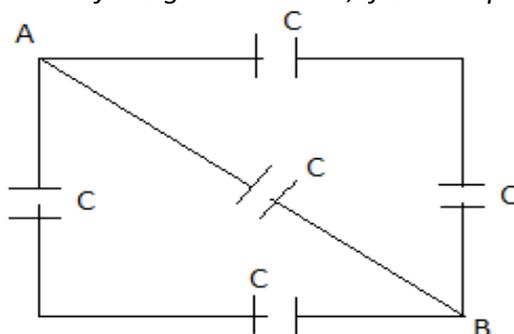
Q4. Show mathematically that the potential at the point on a equatorial line of an electric dipole is zero.

Q5. A hollow metal sphere of radius 5 cm is charged such that the potential on it's surface is  $V$  . What is the potential at the Centre of the sphere?

Q6. Calculate the coulomb force between a proton and an electron separated by  $0.8 \times 10^{-15}$  m.

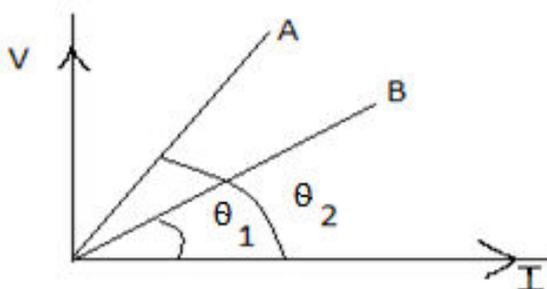
Q7. Calculate the value of electric field exactly balancing the weight of an electron.

Q8. Calculate the net capacitance of the given network, if each capacitor is 5 micro farad.



Q9. Two capacitor 3 farad and 6 farad are connected in series with a 6V battery. Which one has higher potential?

Q10. The V-I graph of two metal is shown below. Which one has higher resistivity?



Q11. How does a torque affect the dipole in an electric field?

Q12. A lamp of 100 W works at 220V. Calculate its resistance and current capacity.

Q13. Why are the thick copper wire used as connecting wire?

Q14. 27 drops of same size are charged at 220V each. They collapse to form a bigger drop. Calculate the Potential of a bigger drop.

Q15. A wire of resistance 5  $\Omega$ (ohm) is drawn out, so that its length is increased to twice its original length. Calculate its original resistance.

### **Project Work** -----

Prepare an Investigatory project: of the one of the followings-

(i) To fabricate logic gates

(ii) To study the different brands of cells available in the market using potentiometer and compare their's EMF and internal resistance .

(iii) To design a transformer and study it's characteristics.