Class 12 Physics

chapter Electrostatics

Q1 when air is replaced by a dielectric medium of dielectric constant k the maximum force of attraction between two charges separated by a distance

a .decreases K times
b. Remains unchanged
c.increases K times d. Decreases k/2

Q2 when a body becomes negatively charged ita mass

a. Decreases
b. Increases
c. Remains the same
d. First increases than decreases

Q3 two point charges Q1 and Q2 are placed close to each other what is the nature of force between the charges when Q1 and Q2 is less than zero?

a. Negative
b. Attractive
c. Both
d. None of these

Q4.The torque acting on a dipole of dipole moment P in an electric field E is

a. P. E
b. P*E (P cross E)
c. Zero
d. E*P(E Cross P)

Q1. if the net electric flux through a closed surface is zero then we can iinfera. No net charge is enclosed by the surface

b. Uniform electric field exists within the surface
c. Electric potential varies from point to point inside the surface
d. Charge is present the surface.

Q2 two electric field lines never cross each other why?

a. Single charge can have just one direction of field.
b. Single charge can have multiple direction of field.
c. Multiple charges must have single direction of field.
d. All of these.

Q3.A circle of radius r us drawn with charge +Q at the centre. A charge q is brought from the point B to C on the circumference. The work done is

a. Positive
b. Negative
c. Infinite
d. Zero

Q. If the distance between two parallel plate capacitor is doubled, it's capacitance

a. Increase two time
b. Decreases two time
c. Increases four times
d. Decreases four times

Q. A capacitor is charged by a battery the battery is removed and identical uncharged capacitor is connected in parallel. The total Electrostatics energy of resulting system

a. Decreases by a factor of 2
b. Remains the same
c. Increases by a factor 2
d. Increases by a factor of 4.

Directions: read the two statements labelled assertion(A) and the other reason(R) carefully mark the correct option out of the codes a, b, c, d given below:

(a) if both assertion(A) and reason (R) are true and a reason (R) is the correct explanation of assertion (A)
b:if both assertion (A) and Reason (R) are true but reason (R) is not the correct explanation of assertion (A)
c:if assertion (A) is but reason (R) is false
d: if assertion (A) is false and reason (R) is also false.

Q1:Assertion:the electric flux through a closed surface is neither affected by charge present outside the surface nor by movement of charges inside the closed surface to new positions in the closed surface.
Reason :Electric flux does not depend on the size or shape of the Gaussian surface.

Q2 a point charge is lying at the centre of a cube. The electric flux emanating from each surface of the cube is 1/6 th of total flux.

Reason (R) According to Gauss theorem, total electric flux through a closed surface is equal to 1/E0 times the magnitude of the charge enclosed

Case study
A Faraday cage or Faraday shield is an enclosure made of a conducting material
The field within a conductor cancel out with any external fields, so the electric field within the enclosure is zero. These Faraday cage acts as big hollow conductors you can put things in to shield them from electrical fields. Any electrical shocks the cage receive, pass harmlessly around the outside of the cage.
Read the above passage carefully and give the answer of the following questions (any four)

Q1 which of the following materials can be used to make a Faraday cage?

a:plastics
b:glass
c:copper
d:wood

Q2: Example of real world Faraday cage is

a: car
b:plastic box
c: lightning rod
d: metal rod

Q 3: what is the electrical force inside a Faraday cage when it is struck by lightning ?

a:the same as the lightning
b: Half that of the lightning
c: Zero
A: A quarter of the lightning.

Q4: An isolated point charge +Q is placed is placed inside the Faraday cage. It's surface must-have charge equal to.

a: zero
b: +Q
c: -Q

d: +2Q

Q5: Caitlin charge of to Columbus place at Sentara for the cage in the shape of cube this episode 9 centimeter edge the number of electrical 9 passing through. You normally will be?