

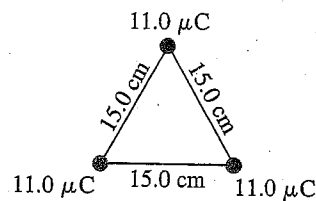
ENF1202 Engineering Physics week 6 tutorial

Q1

Calculate the magnitude of the electrostatic force of attraction between an iron nucleus ($26e$) and its innermost electron if the distance between them is $1.5 \times 10^{-12} \text{ m}$

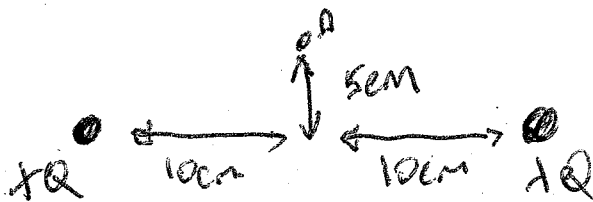
Q2 Three charges of $11 \mu\text{C}$ are placed at the corners of an equilateral triangle of side length 15 cm .

Calculate the magnitude and direction of the force on each charge.

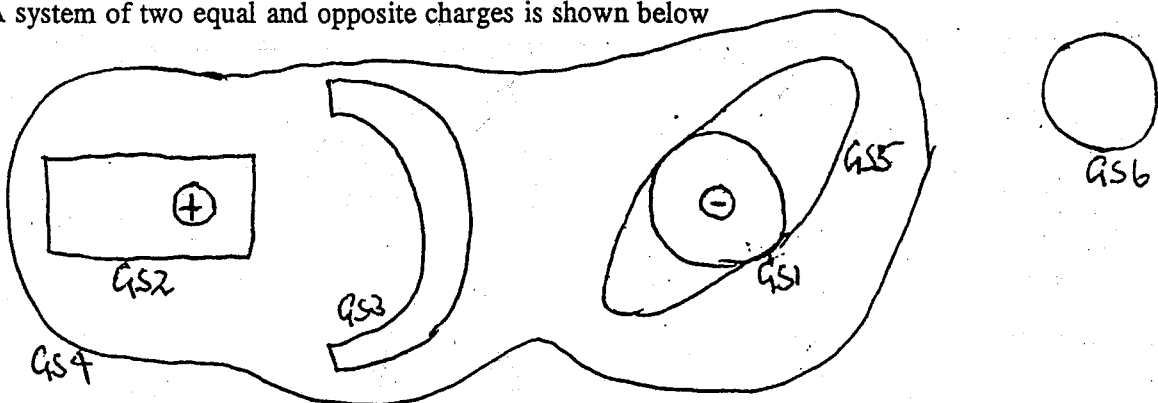


Q3

Calculate the electric field strength at the point A in the figure below



Q4/ A system of two equal and opposite charges is shown below

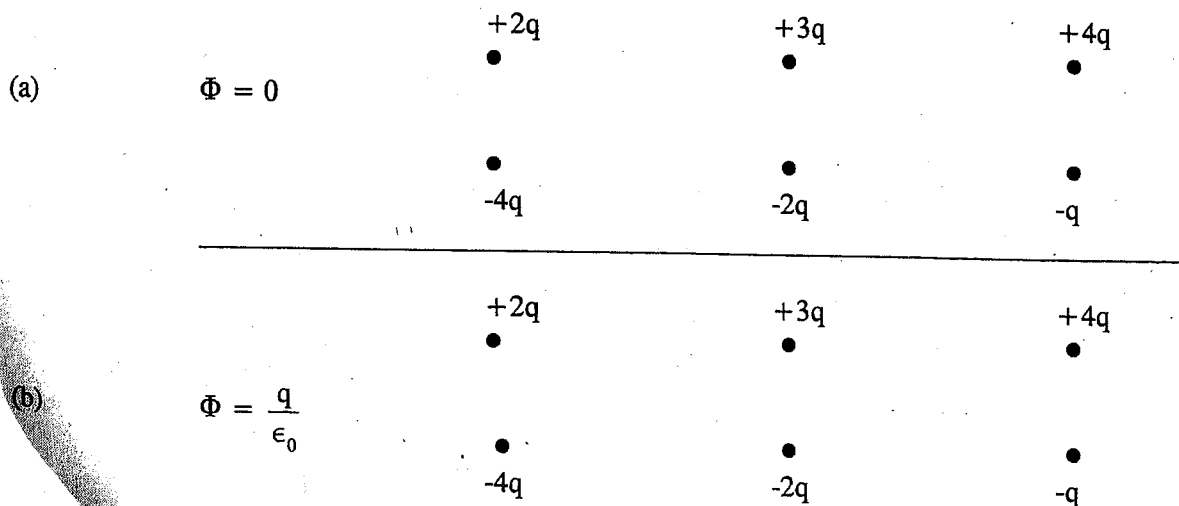


The net flux through Gaussian surface 1 (GS1) is $-\Phi$, what is the net flux through,

- | | |
|-----------------|----------------|
| (i) GS2 _____ | (iv) GS5 _____ |
| (ii) GS3 _____ | (v) GS6 _____ |
| (iii) GS4 _____ | |

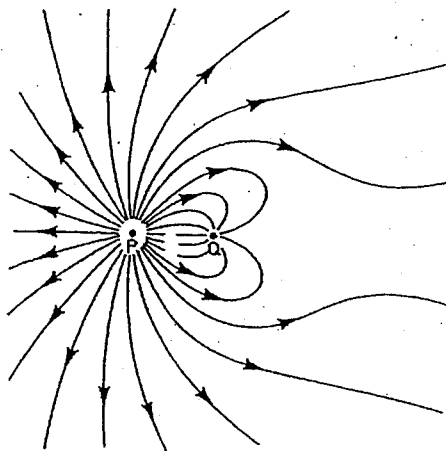
Q5

There are six test charges shown in each figure below. On each figure draw a Gaussian surface which has the appropriate nett flux passing through it. Each surface must contain at least 3 charges.



Q6

The following diagram is to be used for Questions 3 it shows the electric lines of force pattern in the vicinity of two point charges P and Q.



QUESTION 6

Which of the following describes the sign of the charges?

- A. P and Q are both positive.
- B. P and Q are both negative.
- C. P is negative and Q is positive.
- D. P is positive and Q is negative.