5 Fig. 5.1 shows the electric field in the region between two points P and Q. The electric potential at P and at Q are +400 V and −400 V respectively.

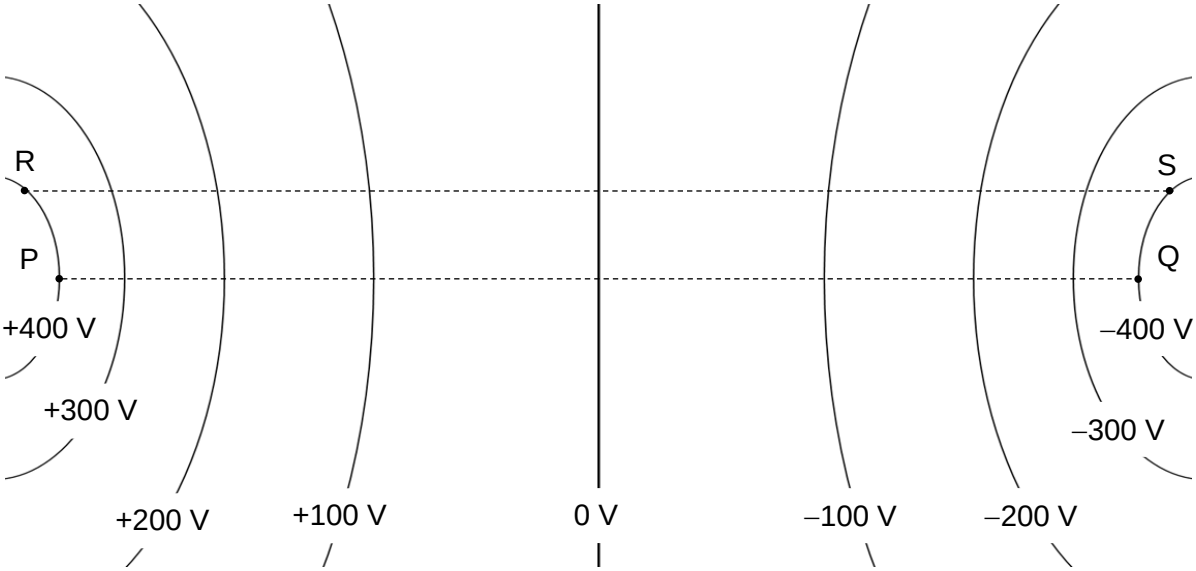

Fig. 5.1

(a) Define *electric potential* at a point.

.....

.....

.....[2]

(b) Describe how the direction and magnitude of the electric field strength varies along the line PQ.

.....

.....

.....[2]

(c) An electron is projected from P towards Q with a speed of 2.2×10^7 m s^{-1}. Calculate its speed when it reaches Q.

speed = ... m s^{-1} [3]

(d) Another electron is projected from R towards S. Explain why this electron will not move in the path RS.

.....

.....[1]

(e) Sketch a possible path taken by the electron in **(d)**. [1]

[Total: 9]