

- 6 (a) State what is meant by *electric potential* at a point.

.....
.....
.....

[2]

- (b) Two parallel metal plates A and B are held a distance d apart in a vacuum, as illustrated in Fig. 6.1.

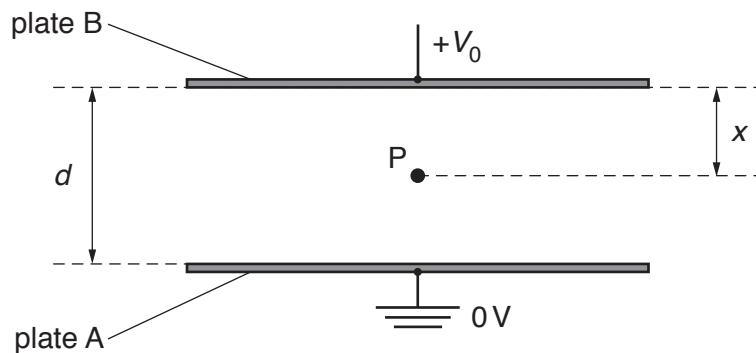


Fig. 6.1

Plate A is earthed and plate B is at a potential of $+V_0$.

Point P is situated in the centre region between the plates at a distance x from plate B. The potential at point P is V .

On Fig. 6.2, show the variation with x of the potential V for values of x from $x = 0$ to $x = d$.

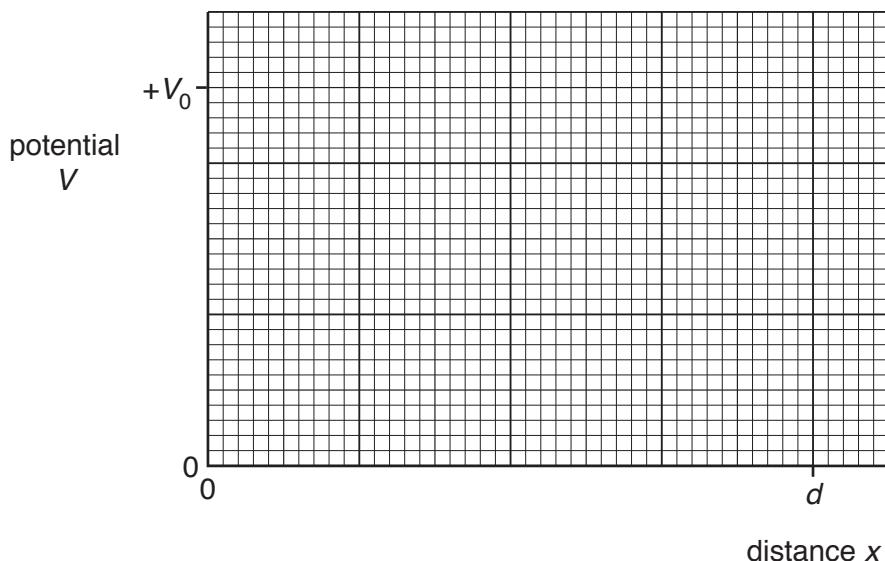


Fig. 6.2

[3]

- (c) Two isolated solid metal spheres M and N, each of radius R , are situated in a vacuum. Their centres are a distance D apart, as illustrated in Fig. 6.3.

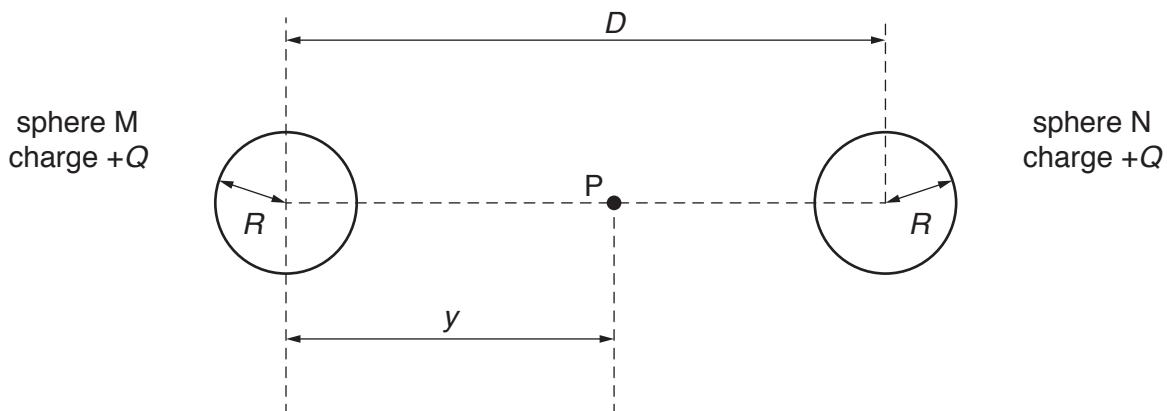


Fig. 6.3

Each sphere has charge $+Q$.

Point P lies on the line joining the centres of the two spheres, and is a distance y from the centre of sphere M.

On Fig. 6.4, show the variation with distance y of the electric potential at point P, for values of y from $y = 0$ to $y = D$.

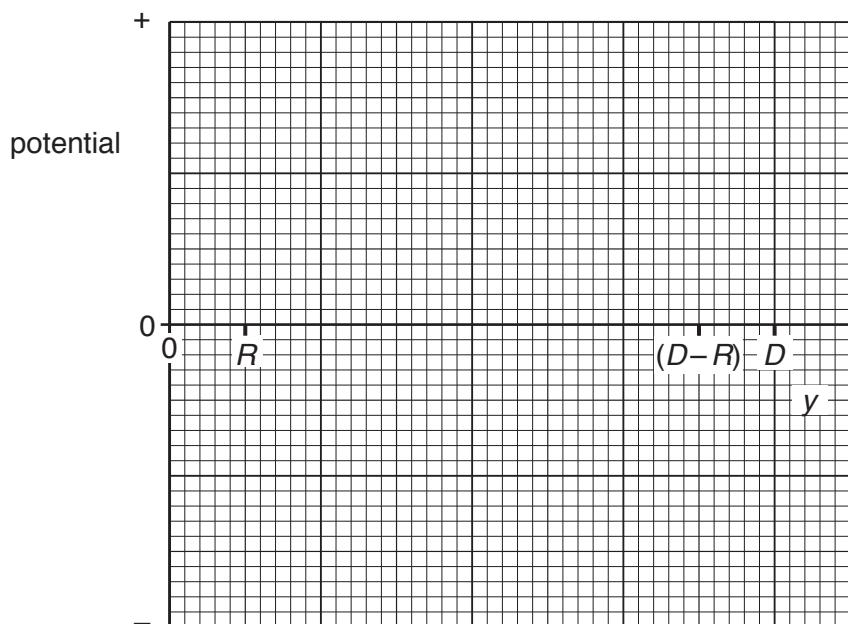


Fig. 6.4

[4]

[Total: 9]