

- 6 (a) State what is meant by *electric field strength*.

.....
[1]

- (b) An isolated metal sphere A of radius 26cm is positively charged. Sphere A is shown in Fig. 6.1.

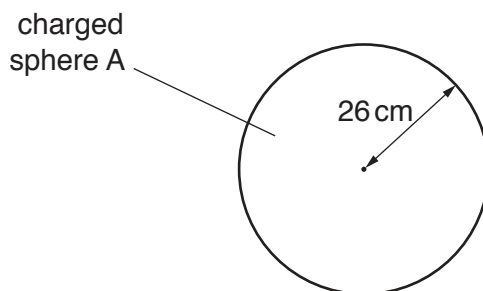


Fig. 6.1

Electrical breakdown (a spark) occurs when the electric field strength at the surface of the sphere exceeds $2.0 \times 10^4 \text{ V m}^{-1}$.

Calculate the maximum charge Q that can be stored on the sphere.

$Q = \dots\dots\dots \text{ C [2]}$

- (c) A second isolated metal sphere B, also with charge $+Q$, has a radius of 52cm.

Calculate the additional charge, in terms of Q , that may be stored on this sphere before electrical breakdown occurs.

additional charge =[2]

[Total: 5]