For Examiner's Use

4 **(a)** **(i)** State what is meant by *electric potential* at a point.

.....

.....

..... [2]

(ii) Define *capacitance*.

.....

..... [1]

(b) The variation of the potential V of an isolated metal sphere with charge Q on its surface is shown in Fig. 4.1.

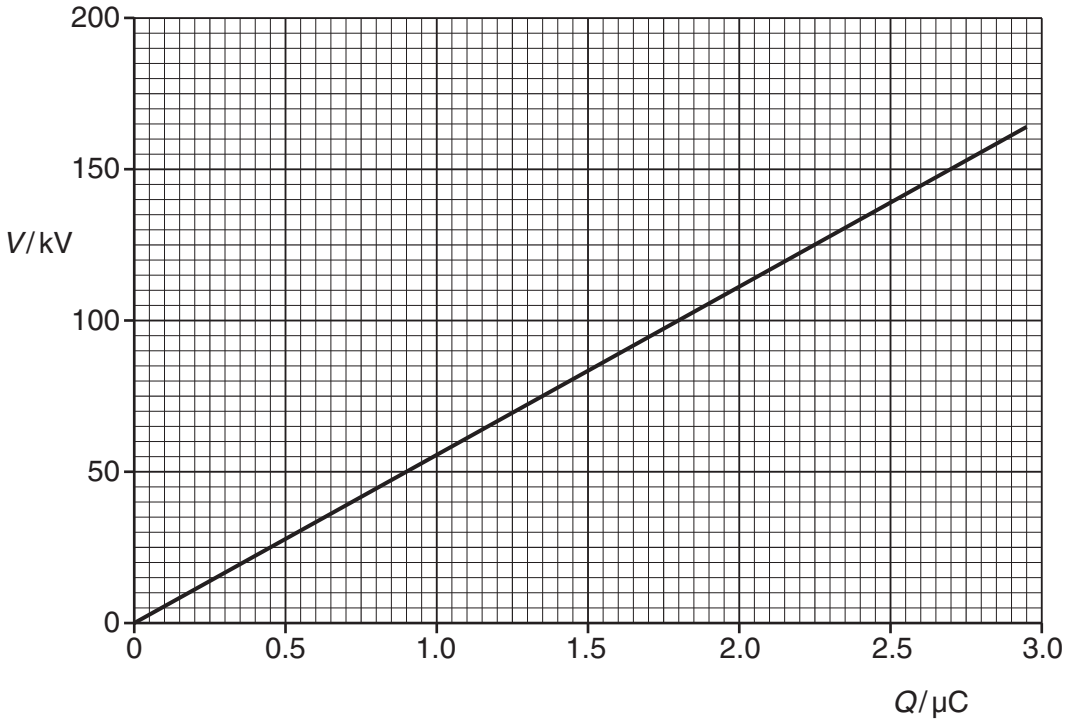

Fig. 4.1

An isolated metal sphere has capacitance.

For Examiner's Use

Use Fig. 4.1 to determine

(i) the capacitance of the sphere,

capacitance = ... F [2]

(ii) the electric potential energy stored on the sphere when charged to a potential of 150 kV.

energy = ... J [2]

(c) A spark reduces the potential of the sphere from 150 kV to 75 kV.
Calculate the energy lost from the sphere.

energy = ... J [2]