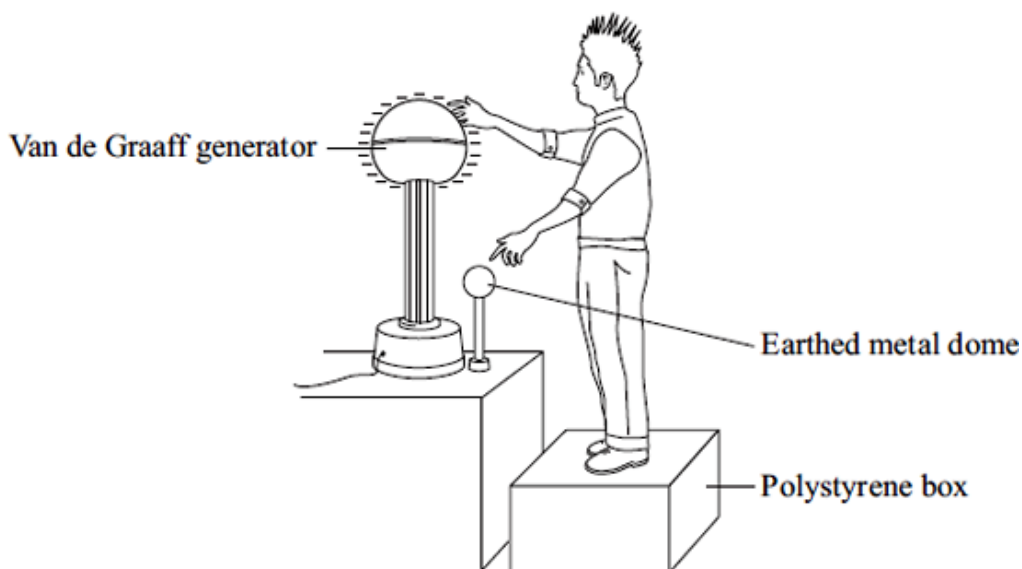


- Q1.** (a) The diagram shows a student touching the metal dome of a Van de Graaff generator. When the generator is switched on, the metal dome becomes negatively charged.



Explain why the student's hair stands on end when the generator is switched on.

.....

(2)

- (b) When the potential difference between the student and a nearby earthed metal dome reached 15 kV, a spark jumped between the student and the earthed dome. The spark transformed 30 mJ of energy into heat, light and sound. (1 mJ = 0.001 J)

Use the equation in the box to calculate the charge carried by the spark.

$\text{energy transformed} = \text{potential difference} \times \text{charge}$
--

.....

Charge transferred = coulombs

(2)

- (c) What name is given to the rate of flow of charge?

.....

(1)

(Total 5 marks)

