

**GCSE Physics B (Twenty First Century Science)**  
**J259/03** Depth in physics (Higher Tier)

**Question Set 2**

1 A toothbrush uses a rechargeable battery.

(a) The energy that is stored in the battery comes from a power station.

State how the energy is transferred from the power station to the chemical store in the battery.

[1]

(b) The potential difference across the battery is 1.2V.

During a typical use, 360C of charge moves through the toothbrush motor over a time of 2 minutes.

(i) Calculate the total energy transferred by the toothbrush in one day if it is used **two** times a day.

Energy transferred = ..... J [3]

(ii) Calculate the current in the toothbrush when used for 2 minutes each time.

Current = ..... A [4]

**Total Marks for Question Set 2: 8**

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