15 Aluminium is one of the most widely recycled metals. Aluminium cans are heated from room temperature until all the aluminium has melted. The molten aluminium is then used to make new cans. This process uses only 5% of the energy needed to extract aluminium from raw materials.

On a website it is claimed that recycling one aluminium can of mass 14 g saves enough energy to listen to music on a mobile phone continuously for 7 days.

Assess the validity of this claim.

melting point of aluminium = 660 K
specific heat capacity of aluminium = 902 $J\,kg^{-1}\,K^{-1}$
specific latent heat of aluminium = 396 $kJ\,kg^{-1}$
room temperature = 293 K
mobile phone p.d. = 3.7 V
mobile phone current = 120 mA

(Total for Question 15 = 6 marks)