

### 'ICE Incineration'

a) It is the initial number of cars using internal combustion. (1)

b) when  $t = 0$ ,  $e^{\frac{1}{10}t} = 1$  (1)

thus,  $N(t) = 3.5 \times 10^7 + E - E$ , and the  $E$ 's cancel. (1)

c)  $N(t) = (3.5 \times 10^7 + 2 \times 10^6)e^{-\frac{1}{10} \times 10} - 2 \times 10^6$  (1)

$N(t) = 1.2 \times 10^7$  (1)

d) As  $t$  tends to infinity,  $(3.5 \times 10^7 + E)e^{-\frac{1}{10}t}$  tends to zero. (1)

This would model the number of cars using internal combustion engines as negative, thus the model is not suitable for large values of  $t$ . (1)