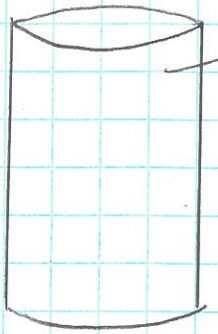

$V = 1L$ of liquid H_2O

$= 10^{-3} m^3$

$\rho_w = 1000 \text{ kg/m}$

So $M = \rho_w V = 1 \text{ kg}$.

Atomic mass of $H = 1u$

" " of $O = 16u$

So: " " of $H_2O = 18u$

Molar Mass, $M_{mol} = \frac{18u}{1000} = 0.018 \text{ kg/mol}$

Number of moles: $n = \frac{M}{M_{mol}} = 55.5 \text{ mols}$

Number of molecules, $N = nN_A = 3.34 \times 10^{25}$

each molecule has 10 protons & 10 electrons

So, the charge of the electrons:

$$Q = -10Ne = -5.35 \times 10^7 \text{ C}$$

(Not the same ans. as in book – they use $M_O = 8u$, not $16u$).