

## Unit 1 - activity

- (c) A sample of bromine gas occupied  $200\text{ cm}^3$  at a temperature of  $77^\circ\text{C}$  and a pressure of  $1.51 \times 10^5\text{ Pa}$ .

Calculate, using the ideal gas equation, the amount in moles of bromine molecules in this sample.

$$[pV = nRT \quad R = 8.31\text{ J mol}^{-1}\text{ K}^{-1}]$$

(4)

Question number	Answer	Additional guidance	Mark
20(b)(iii)	<ul style="list-style-type: none"> <li>calculation of amount (mol) of <math>\text{Br}_2</math></li> <li>calculation of molecules of <math>\text{Br}_2</math></li> </ul>	<p>Example of calculation:</p> <p>(1) Amount of <math>\text{Br}_2 = \frac{2.00}{160} = 0.0125\text{ (mol)}</math></p> <p>(1) Molecules of <math>\text{Br}_2 = 0.0125 \times 6.02 \times 10^{23} = 7.525 \times 10^{21}</math></p> <p>or</p> <p>Amount of <math>\text{Br}_2 = \frac{2.00}{(2 \times 79.9)} = 0.012516\text{ (mol)}</math></p> <p>Molecules of <math>\text{Br}_2 = 0.012516 \times 6.02 \times 10^{23} = 7.5344 \times 10^{21}</math></p> <p>TE on amount <math>\text{Br}_2</math></p> <p>Correct answer with no working scores both marks</p> <p>Ignore SF except 1 SF</p>	2