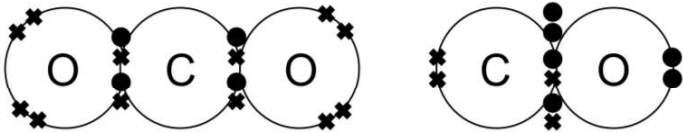


1.	This question is about carbon dioxide	Mark
(a)	(i)  <p>carbon dioxide carbon monoxide</p> <p>One mark each. Allow any combination of dots and crosses.</p>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	(ii) $\text{CO}_2 = +4$ $\text{CO} = +2$ Difference = 2 Allow -2.	<input checked="" type="checkbox"/>
	(i) $c = k \times p(\text{CO}_2)$ $0.099 \text{ mol dm}^{-3}$	<input checked="" type="checkbox"/>
	(ii) 1.09 g <i>ECF answer = $(11.01 \times \text{answer to part (i)}) \text{ g}$</i>	<input checked="" type="checkbox"/>
	(iii) $2.45 \times 10^5 \text{ Pa}$ <i>ECF answer = $(2.25 \times 10^5 \times \text{answer to part (ii)}) \text{ Pa}$</i>	<input checked="" type="checkbox"/>
(b)	(iv) <input checked="" type="checkbox"/> high pressure and low temperature <input type="checkbox"/> high pressure and high temperature <input type="checkbox"/> low pressure and low temperature <input type="checkbox"/> low pressure and high temperature No marks if more than one box ticked.	<input checked="" type="checkbox"/>
	(c) Accept values in range 57—63 °C	<input checked="" type="checkbox"/>
	(d) CO 33.3 moles H ₂ O 33.3 moles CO ₂ 26.7 moles H ₂ 26.7 moles <i>All four correct two marks. No partial credit.</i>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	(e) enthalpy of reaction = $-393.5 \text{ kJ mol}^{-1} - (-110.5 + -241.1) \text{ kJ mol}^{-1}$ = $-41.9 \text{ kJ mol}^{-1}$ Do not award mark for positive answer.	<input checked="" type="checkbox"/>
Total out of 11		11