

Energy transfer in chemical reactions

1.	(a)	carbon <u>dioxide</u> <i>must be name</i> <i>do not accept carbon oxide</i>	1	
	(b)	(i) the temperature of the solution will decrease <i>(list principle)</i>	1	
		(ii) energy is taken in from the surroundings <i>(list principle)</i>	1	
				[3]
2.	(a)	(i) high and low <i>both needed for mark</i>	1	
		(ii) reversible	1	
		(iii) to prevent ammonium chloride / solid / particles escaping <i>idea of a filter</i> <i>do not accept 'to prevent gases escaping'</i>	1	
	(b)	endothermic	1	
				[4]
3.	(a)	the bag gets cold because heat energy is taken in from the surroundings	1	
	(b)	endothermic	1	
	(c)	any two from:		
		• mix / spread (the ammonium nitrate and water)		
		• dissolve <u>faster</u> (*)		
		• get cold <u>faster</u> or so the <u>whole</u> bag gets cold(*) <i>(*)allow increase rate or quicker reaction</i>		
		• particles collide <u>more</u> or <u>more</u> collisions	2	
				[4]
4.	(a)	endothermic and because it takes in heat / energy <i>both for one mark</i>	1	
	(b)	(i) reversible reaction (or explanation)	1	
		(ii) add water	1	
		<i>do not accept cooling or reverse the reaction</i>		
				[3]