

Q		Expected answers	Marks	Additional guidance
1		synthesis	1	
			1	
2		hydrogen N ₂ sodium chloride	1	
			1	
			1	
			3	
3		12	1	
			1	
4		harmful/irritant, corrosive, toxic	2	all correct = 2, one or two correct = 1
			2	
5	a	(B) A F C E D A <u>somewhere</u> before F (1); F <u>somewhere</u> before C (1); C <u>somewhere</u> before E (1); E <u>somewhere</u> before D (1)	4	
	b i	magnesium oxide or sulfuric acid	1	
	b ii	magnesium sulfate or water	1	
	b iii	90%	1	
			7	
6		filter funnel burette	1	Correct order
			1	
			2	
7	a	<ul style="list-style-type: none"> higher the temperature the faster the rate correct reference to results in graph, e.g. the graph shows that the line is steeper at higher temperatures / there is more hydrogen produced in a shorter time at higher temperatures 	1	
	b	measure the volume of a product	1	
	c	safety/productivity/meeting deadlines	1	
			4	

TOTAL 20

Practice test mark scheme Higher

Q		Expected answers	Marks	Additional guidance
1	a	• higher the temperature the faster the rate	1	
		• correct reference to results in graph, e.g. the graph shows that the line is steeper at higher temperatures / there is more hydrogen produced in a shorter time at higher temperatures	1	
	b	measure the volume of a product	1	
	c	safety/productivity/meeting deadlines	1	
	d	<ul style="list-style-type: none"> • higher the concentration the faster the rate • at higher concentrations there are more particles per unit volume • this results in more (successful) collisions (and hence a faster rate of reaction) 	1 1 1	
			7	
2	a	NaCl	1	
		nitric acid	1	
		magnesium carbonate	1	
	b	Ca ²⁺	1	
			4	
3		12	1	
			1	
4	a	MgSO ₄ = 120 (1);	4	Last mark is evaluation using own figures
		MgO = 40 (1);		
		scaling (600/120) × 40 (e.c.f. from own values of formula masses) (1);		
	200 (1) (kg)			
b i	90 (%)	1		
b ii	in the purification stage / in the separation stage	1		
			6	
5	a	burette	1	
	b	0.08 (mol/dm ³)	1	

TOTAL 20