Question 1

1(a)(i)	gets less (metallic) / decrease (in metal character)	**1**
1(a)(ii)	1 mark each for any two of: • density increases • melting point decreases • reactivity increases	**2**

Question 2

2(a)	1 mark each for any two of: • iron has a high(er) melting point / boiling point • iron has a high(er) density • iron is strong(er) • hard(er)	**2**

Question 3

3(a)(i)	values between 30 and 62 (°C) (inclusive of these values)	**1**
3(a)(ii)	values between 100 and 1100 (g / dm^3) (inclusive of these values)	**1**
3(a)(iii)	bubbles form rapidly AND flame OR bubbles form **very** rapidly	**1**
3(a)(iv)	solid (1) 20 °C is below the melting point / the melting point is above 20 °C (1)	**2**

Question 4

4(a)(i)	boiling point of Na any values between 800 and 1300 (°C) (inclusive of these values) (1) hardness of Li: any value <u>above</u> 0.70 (MPa) up to a maximum of 5.0 (MPa) (1)	**2**
4(a)(ii)	liquid (1) 200 °C is above the melting point and below the boiling point / 200 °C is between the melting and boiling points (1)	**2**
4(b)	1 mark each for any 2 of: • bubbles / effervescence / fizzing • potassium disappears • potassium moves around • potassium floats on the surface • (bursts into) flame / sparks / explodes **BUT** colour of flame is lilac = 2 marks	**2**

Question 5

5(a)	metallic	**1**
5(b)(i)	lighted splint **and** (squeaky) pop	**1**
5(b)(ii)	14	**1**
5(b)(iii)	universal indicator	**1**
5(b)(iv)	$2Na(s) + 2H_2O(l) \rightarrow 2NaOH(aq) + H_2(g)$ **M1** NaOH as product in equation (1) **M2** fully correct equation (1) **M3** state symbols (1)	**3**

Question 6

6(a)(v)	Li	**1**

Question 7

7(a)(i)	from left to right caesium → rubidium→ potassium →sodium → lithium	**1**
7(a)(ii)	caesium hydroxide	**1**
7(b)	Group I element is less strong / not strong **ORA** **OR** Group I element has low(er) density **ORA** **OR** Group I element is soft(er) **ORA**	**1**