

M1.(a) B

1

(b) D

1

(c) E

1

(d) C

1

(e)  $92.5 \times 6$  and  
 $7 \times 7.5$

1

$$\frac{607.5}{100}$$

1

6.075

1

6.08

1

*allow 6.08 with no working shown for 4 marks*

[8]

<b>M2.(a)</b>	Y		1
	(b)	W	1
	(c)	V	1
	(d)	W	1
	(e)	X	1
			<b>[5]</b>

<b>M3.(a)</b>	(i)	Na	<i>allow sodium</i>	1
	(ii)	Cu	<i>allow copper</i>	1
	(iii)	C	<i>allow carbon</i>	1
	(iv)	He	<i>allow helium</i>	1
	(b)	H	<i>allow hydrogen</i> <i>do not allow H<sub>2</sub></i>	1
				<b>[5]</b>

- M4.(a) (i) atomic weight 1
- (ii) groups 1
- (iii) left a gap 1
- (iv) had not been discovered by 1869 1
- (b) protons 1
- must be in correct order*
- electrons 1
- (c) sodium and nickel are both metals 1
- sodium is more reactive than nickel 1
- (d) (i) bromine 1
- allow Br<sub>2</sub> / Br*
- do **not** allow bromide*
- (ii) iodine is less reactive (than bromine) 1
- it = iodine*
- allow converse*
- do **not** allow bromide*

[10]

M5.(a) (i) E 1

(ii) C 1

(iii) A 1

(b) (i) quickly melted  
*allow melts in contact with water,*  
*allow bp 100 °C (of water) shows mp is low*  
*ignore one other piece of information* 1

(ii) easily cut  
*ignore one other piece of information* 1

(iii) effervescence / fizzing / bubbling  
*ignore named gas*  
*ignore one other piece of information* 1

[6]

**M6.(a)** 1 / one

**1**

(b) (i) protons

**1**

(ii) neutrons

**1**

(iii) 7

**1**

(c) (i) losing

**1**

(ii) a positive

**1**

(iii) electrostatic

**1**

(d) high melting points

**1**

strong bonds

**1**

(e) (i) 58.5

**1**

(ii) mole

1

(f) very small (particles) **or**

*ignore tiny / small / smaller / microscopic etc.*

1-100nm in size **or**

(particle with a) few hundred atoms

1

[12]

M7.(a) number

1

0

*allow 8*

1

(b) beryllium **or** magnesium **or** strontium **or** barium **or** radium

*allow correct symbols*

1

(c) (i) an alkali metal

1

(ii) a transition metal

1

(d) for undiscovered elements

*accept so elements with similar properties were in the same groups*

*accept so elements fitted the pattern of properties*

1

[6]

- M8.** (a) groups 1
- (b) it is a non-metal  
*allow it is not a metal* 1
- (c) to the right of column 7 / Group 7  
*accept in Group 0*  
*ignore Group 8 / noble gases* 1
- (d) (atomic) number  
*allow proton number* 1

[4]



**M9.** (a) sodium has a lower density

1

sodium is more reactive

1

(b) hydrogen

1

(c) OH(aq)

1

[4]