

M1.(a) B

1

(b) D

1

(c) E

1

(d) C

1

(e) 92.5×6 and
 7×7.5

1

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

1

6.075

1

6.08

1

allow 6.08 with no working shown for 4 marks

[8]

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

M3.(a)	(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 H₂</i>	1
				[5]

M4.(a)	(i)	atomic weight	1
	(ii)	groups	1
	(iii)	left a gap	1
	(iv)	had not been discovered by 1869	1
(b)		protons	
		<i>must be in correct order</i>	1
		electrons	1
(c)		sodium and nickel are both metals	1
		sodium is more reactive than nickel	1
(d)	(i)	bromine	
		<i>allow Br₂ / Br</i>	
		<i>do not allow bromide</i>	1
	(ii)	iodine is less reactive (than bromine)	
		<i>it = iodine</i>	
		<i>allow converse</i>	
		<i>do not allow bromide</i>	1
			[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) $\text{OH}^{-}(\text{aq})$

1

[4]