

2.0.0 SIMPLE CLASSIFICATION OF SUBSTANCES ANS

For Examiners use only.

Question	Maximum Score	Candidates Score
1 - 10	57	

1.

- (a) (i) 100 *accept answers from 98 to 100* 1 (L5)
- (ii) to condense the water vapour *accept 'to change the gas into liquid' or 'condensation' or 'condenser' accept 'to cool the vapour into water' do not accept 'to cool the vapour or water'* 1 (L5)
- (iii) distillation or distilling 1 (L5)
- (b) (i) evaporating or boiling 1 (L6)  
 melting 1 (L6)  
 freezing 1 (L6)  
 condensing 1 (L6)
- (ii) A *accept 'boiling'* 1 (L6)  
 D *accept 'condensing'* 1 (L6)  
*accept the letters written in the correct places on the diagram*

[9]

2.

- (a) does not dissolve in solvent / interfere with results owtte (1) [1]  
 (b) 1 and 3 (1) [1]  
 (c) sample 4 (1)  
 two spots present (1) [2]  
 (d) to show position of the acids / spots (1) [1]



- 3.
- (a) Ice warms up. Temperature rises from  $-10$  to  $0^{\circ}\text{C}$ . No change of state [1m]
  - (b) Temperature stays constant [1m]. Change of state occurs. Ice changes to liquid [1m] water.
  - (c) Water warms up. Temperature changes from  $0^{\circ}\text{C}$  to  $100^{\circ}\text{C}$  [1m]
  - (d) Temperature remains constant [1m]. Change of state occurs. Boils to steam at  $100^{\circ}\text{C}$  [1m]
- [Total 6m]

4. Ans

<b>(a)</b>	Safety precaution liquid might overflow & ignitor vapour might ignite ANY TWO VALID COMMENTS .....	1 + 1	2
<b>(b) (i)</b>	cooling .....	1	
	solidifying .....	1	
	exothermic .....	1	
<b>(ii)</b>	$37^{\circ}\text{C}$ .....	1	
<b>(iii)</b>	single melting temperature .....	1	
<b>(iv)</b>	room temperature .....	1	6
<b>Total 8</b>			

- 5.
- (a) (i) *magnesium* + oxygen @ magnesium oxide 2  
*do not accept formulae*
  - (ii) any one from 1  
*do not accept 'air' for oxygen*
    - the oxygen had mass
    - oxygen was added to the magnesium  
*accept 'magnesium has gained an element'*
    - the magnesium has reacted with oxygen  
*accept 'magnesium is now part of a compound'*

- |                |                               |   |
|----------------|-------------------------------|---|
| (b) oxygen     | <i>accept 'O<sub>2</sub>'</i> | 1 |
| (c) zinc oxide | <i>accept 'ZnO'</i>           | 1 |

(d)

	chemical change	physical change
A	✓	
B	✓	
C		

✓

1

*all three ticks are required for the mark*

[6]

6.

(a) Increase the potential energy of the molecules

OR do work in separating the molecules 1

against intermolecular forces/bonds 1 (2)

(b) Molecules are moving around randomly 1

spread in all directions 1 (2)

[Total 4]

7.

(a) (i) iron *do not accept '1540°C'* 1

(ii) mercury *do not accept '-37°C'* 1

(b) solid to a liquid *answers must be in the correct order* 1  
*both answers are required for the mark*

(c) 5 1

(d) (i) sodium 1

(ii) gold 1

[6]

8.

64

$30^{E+2}$  wrong/ correct charge ( - ½ )

9.

(a) (i) C 1

(ii) D 1

(iii) A and B *answers may be in either order* 1  
*both answers are required for the mark*

(iv) A and D *answers may be in either order* 1  
*both answers are required for the mark*

- |     |     |          |                       |   |
|-----|-----|----------|-----------------------|---|
| (v) | C   |          | 1                     |   |
| (b) | (i) | the same | <i>accept 'seven'</i> | 1 |

- (ii) a random, mixed arrangement of both types of molecule should be drawn with the molecules not touching each other 1

[7]

10.

- (a) Q
- (b) P or Q
- (c) T
- (d) R
- (e) Q

[Total 5m]