

SIMPLE CLASSIFICATION OF SUBSTANCES

1.

- (a) chromatography (1) [1]
- (b) line drawn on diagram below origin (1) [1]
- (c) does not interfere with results/owtte (1) [1]

2.

- (a) A thermometer (1)
- B beaker (1)
- C tripod (1) [3]
- (b) to cool / condense the vapour (1) [1]
- (c) measure the boiling point (1) [1]

[Total: 5]

3.

- | | | | |
|-----|---|---------------------------------|---|
| (a) | evaporation then condensation ✓
award 1
no mark | if more than one box is ticked, | |
| (b) | water accept 'distillate' | 1 | |
| (c) | 100 accept a temperature from 99 to 101 | | 1 |
| (d) | (i) a temperature above 15 but below 100
any one from | | 1 |
| | <ul style="list-style-type: none"> • it is heated by the water vapour
accept 'vapour or steam or hot water' for water vapour • thermal energy or heat is transferred from the water vapour
accept 'it heats up'
both the answer and the correct explanation are required for the mark | | |
| | (ii) any one from 1 | | |
| | <ul style="list-style-type: none"> • it condenses accept 'it makes condensation' • it changes to a liquid accept 'it is liquid'
accept 'it changes state'
accept 'it turns to water' • its temperature falls accept 'it cools'
'it changes temperature' is insufficient | | 1 |
| (e) | any one from | | 1 |

- cold water replaces warm water
accept 'it cools the water vapour better **or** more efficiently **or** quickly'
accept 'it will work faster'
- the water stays cold **or** cooler
- there is a bigger difference in temperature between the water vapour and the water
- some vapour escapes in B
accept 'it is cooled over a bigger length **or** for longer'
accept 'more water is collected'

[7]

4.

- (a) negligible/(approximately) $\frac{1}{2000}$; [Reject zero]
0;
1;
+1; 4
- (b) (i) chlorine;
17 electrons; 2
- (ii) 17; 1
- (iii) A description to include:
1. (pale) green/yellow-green;
2. gas; 2

[9]

5.

- i) I. SoapP1, sodiumP1 stearateP1
II. HydrolysisP1
ii) To precipitate P1soap/ solid L

6.

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