

Paper 3

Questions are applicable for both core and extended candidates

- 1 (a)** A sample of soil is shaken with distilled water.

Draw a diagram to show the filtration apparatus used to separate the soil from the solution obtained by shaking the soil with distilled water.

On your diagram, label:

- the filtrate
- the residue.

[3]

Paper 4

**Questions are applicable for both core and extended candidates
unless indicated in the question**

- 2** A student prepares calcium nitrate, $\text{Ca}(\text{NO}_3)_2$, by adding calcium carbonate to dilute nitric acid.

(a) Write the chemical equation for this reaction.

..... [2]

(b) Describe **two** observations during this reaction.

1

2 [2]

(c) The student continues to add calcium carbonate until it is in excess. The student then removes the excess calcium carbonate by filtration and collects the aqueous calcium nitrate.

State the general term given to a solution collected from filtration.

..... [1]

(d) The student gently heats the aqueous calcium nitrate until the solution is saturated.

(i) Suggest what is meant by the term *saturated solution*.

.....
..... [2]

(ii) Describe how crystals are produced from a hot saturated solution.

..... [1]