Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use
Total Task 2

General Certificate of Education
Advanced Subsidiary Examination
June 2014

Biology BIO3X/PM2

Unit 3X AS Externally Marked Practical Assignment
Task Sheet 2

To be completed before the EMPA Written Test.

For submission by 15 May 2014

For this paper you must have:
- a ruler with millimetre measurements
- a calculator.

Task 2

Introduction

Capillary action causes some of the movement of water up plant stems. Water moving up stems carries mineral ions that have been absorbed by the roots.

In Task 2, you will investigate whether the concentration of sodium chloride (salt) in solution has any effect on capillary action. You will use a capillary tube as a model for water movement in the xylem in a plant stem.

Materials

You are provided with:

- capillary tubes
- coloured water
- coloured salt solutions of concentrations 0.3 mol dm^{-3}, 0.5 mol dm^{-3}, 0.8 mol dm^{-3} and 1.0 mol dm^{-3}
- syringe or measuring cylinder
- beaker
- timer
- ruler with millimetre measurements
- pot to dispose of used capillary tubes.

You may ask your teacher for any other apparatus you require.

Method

Read these instructions carefully before you start your investigation.

1. Place 5 cm^3 coloured water into the beaker.

2. Stand one capillary tube in the beaker.

3. Start the timer and observe the coloured water as it moves up the tubing.

4. After 30 seconds, gently remove the capillary tube and measure, in millimetres, how far up the tube the coloured water has moved.

5. Repeat steps 1 to 4 two more times. Use a new capillary tube for each trial.

6. Empty your beaker, rinse and dry.

7. Repeat steps 1 to 6 with each of the coloured salt solutions.

Presenting your data

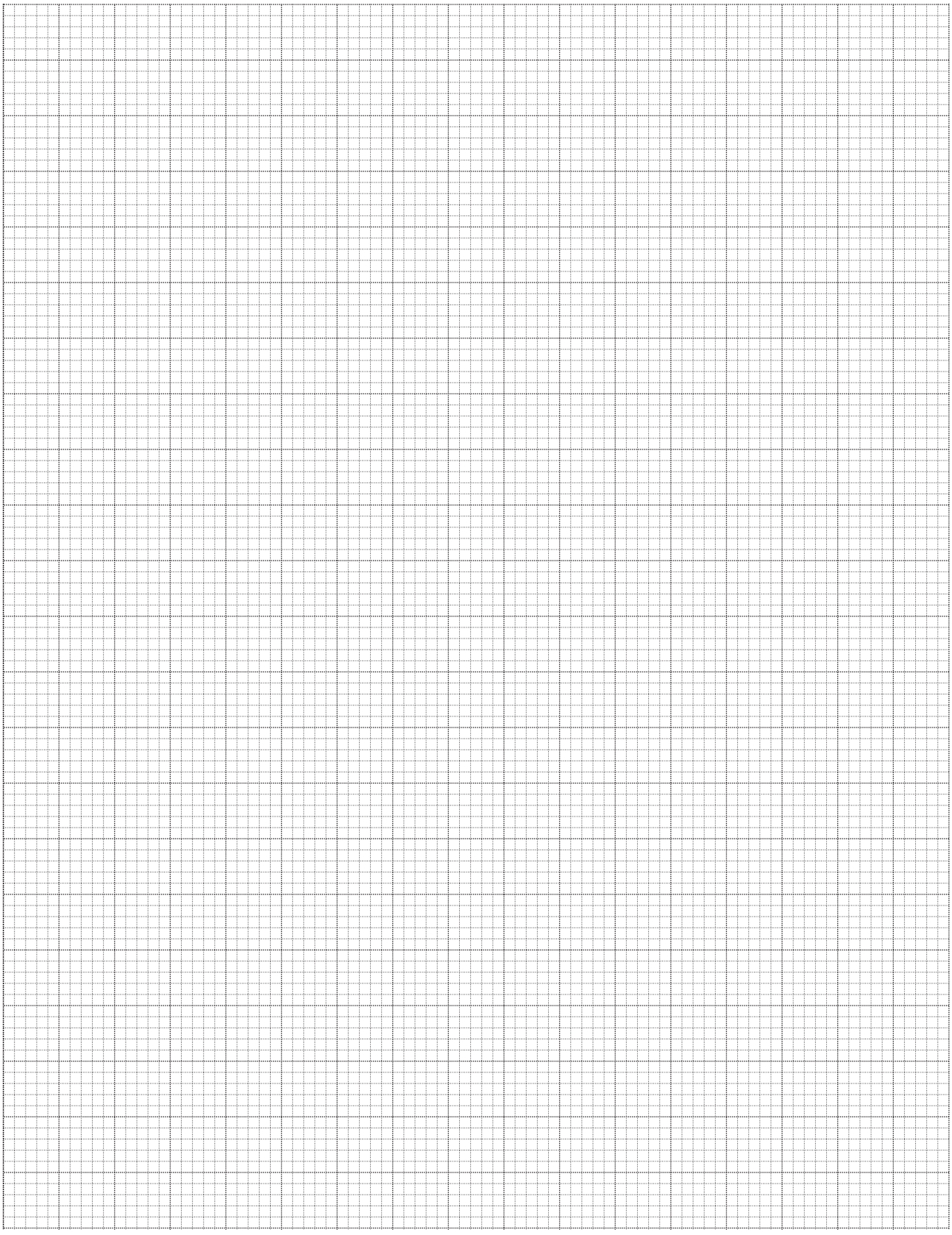
7 Record the results of the investigation in an appropriate table in the space below. Hand in this sheet at the end of each practical session.

[3 marks]

Turn over for the next question

8 Use the graph paper to plot an appropriate graph of your processed data.

[6 marks]



END OF TASK 2

9