

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use Total Task 2



General Certificate of Education
Advanced Subsidiary Examination
June 2013

Human Biology

HBI3X/PM2

Unit 3X AS Externally Marked Practical Assignment

Task Sheet 2

To be completed before the EMPA Written Test.

For submission by 15 May 2013

For this paper you must have:

- your completed Task Sheet 1
- a ruler with millimetre measurements
- a calculator.

Investigating the concentration of vitamin C in fruit juices

Introduction

Vitamin C is a vitamin found in fruit and vegetables. Different fruit juices may contain different concentrations of vitamin C.

The greater the concentration of vitamin C in a fruit juice, the smaller the volume of juice needed to make DCPIP lose its colour.

Task 2

In Task 2, you will determine the concentration of vitamin C in different fruit juices. You will measure the volume of each fruit juice it takes to make DCPIP lose its colour. In some fruit juices, DCPIP may turn red before it loses its colour. In some fruit juices there may be no vitamin C present. All your experiments will be carried out at room temperature.

Materials

You are provided with:

- DCPIP solution
- 4 different fruit juices
- syringes
- test tubes
- test-tube rack
- white card or paper
- marker pen
- paper towels.

You may ask for any other apparatus you require.

Outline method

Read these instructions carefully before you start your investigation.

1. Label four test tubes **A**, **B**, **C**, and **D**.
2. Put 0.5 cm³ DCPIP solution into tube **A** and place a piece of white card or paper behind the tube.
3. Put exactly 1 cm³ of fruit juice into one of the syringes.
4. Wipe the outside of the syringe.
5. Add a drop of fruit juice to tube **A** and shake the tube.
6. Observe the colour of the DCPIP after shaking the tube.
7. Repeat steps 5 and 6 until the blue colour of the DCPIP has gone. **DCPIP may turn red before losing its colour. You are looking for DCPIP to lose its colour.**
8. Record the volume of the juice that was needed to make DCPIP lose its colour.
9. Repeat steps 2 to 8 for tubes **B**, **C** and **D** using the other fruit juices provided.

You will need to decide for yourself:

- when the DCPIP has lost its colour
- how many repeats to carry out.

Turn over for Question 7

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Presenting data

- 7 Record the results of your investigation in an appropriate table in the space below.
(3 marks)

Processing data

- 8** In Task 1, you calculated how much vitamin C was needed to decolourise 0.5 cm^3 DCPIP. Use your result from Task 1 to calculate the concentration of vitamin C in mg cm^{-3} present in each fruit juice.
Use the space below to do any calculations.

(1 mark)

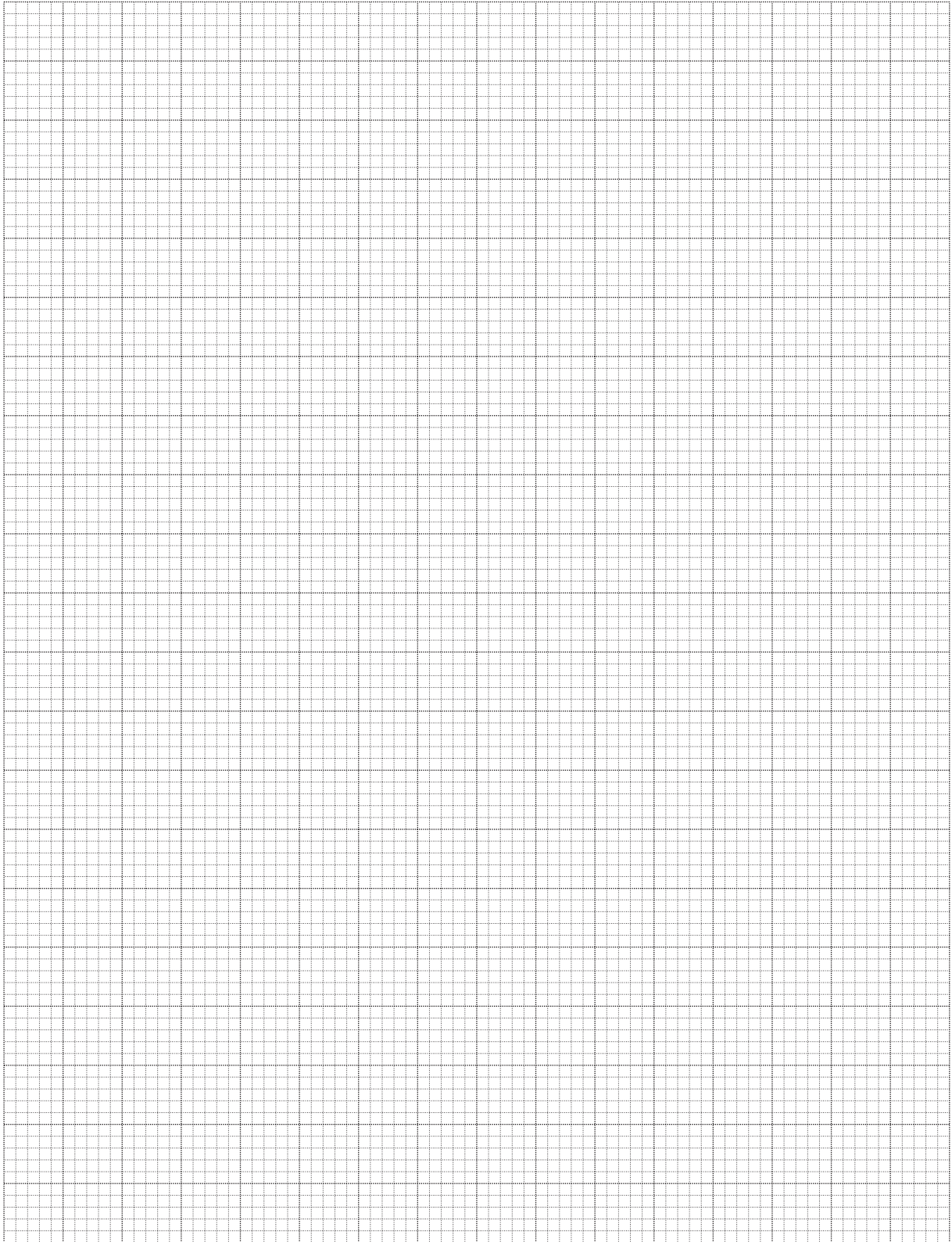
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9

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

(6 marks)



END OF TASK 2

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