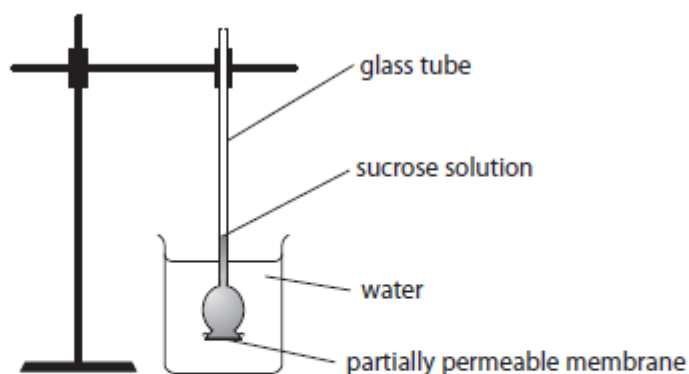


Activity 5 – Biology

Paper 1B, Q4ab

4 This apparatus can be used to show osmosis.



(a) Explain what happens to the level of the sucrose solution in the glass tube.

(3)

(b) Describe how this apparatus could be modified to measure the rate of osmosis at different temperatures.

(3)

Question Number	Answer	Additional guidance	Mark
4(a)	<p>An explanation that makes reference to the following points:</p> <ul style="list-style-type: none"> • moves up / increases (1) • water enters / water passes through membrane (1) • sucrose is a concentrated solution / sucrose has a low(er) water potential / high water potential to low water potential / down a water potential gradient / dilute to concentrated (1) 	Mp3 Allow high conc. to low conc. of <u>water</u> / down water conc gradient	3

Question Number	Answer	Mark
4(b)	<p>An explanation that makes reference to the following points:</p> <ul style="list-style-type: none"> • use water bath / use Bunsen (1) • use scale / measurements (on tube)/ ruler / (use pen to) mark tube (1) • use clock / timer / stopwatch (1) 	3

- 7 (a) A student investigates the sugar content of four different fruit juices.

This is the student's method.

- add 5 cm³ of fruit juice to a boiling tube
- add 5 cm³ of Benedict's solution to the boiling tube
- place the boiling tube in a water bath at 70 °C for three minutes
- remove the boiling tube and record the colour of the solution

The student uses this method for each of the four fruit juices.

- (iii) The student is now given sugar solutions with concentrations of 1%, 5%, 10% and 20%.

Explain how the student could use these solutions to estimate the concentration of sugar in the four fruit juices.

(3)

Question Number	Answer	Additional guidance	Mark
7 (a)(iii)	<p>An explanation that makes reference to three of the following:</p> <ul style="list-style-type: none"> • use 5cm³ / same volume of each (sugar) solution and use 5cm³ / same volume of Benedict's (1) • heat at same temperature and for 3 minutes / heat at 70°C and for 3 minutes (1) • match / compare <u>colour</u> of sugar solutions with fruit juices / eq (1) 	<p>use the original/ same method alone = 1 only if mp1 or mp2 are not awarded</p>	3