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MARKING GUIDE

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G.H.S.

E.O.T. BIOLOGY PAPER 2

SENIOR 3
NOV. 2013

TIME: 1 1/2 hours

Name: _____

Instructions:

- Answer ALL questions
- Drawings should be made in the spaces provided
- Use sharp pencils for your drawings.

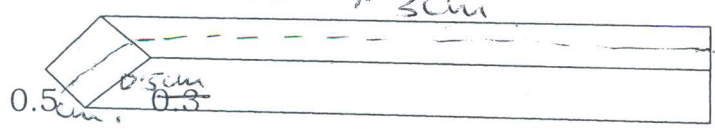
1	11 1/2
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max 30

1. You are provided with specimen B which is plant material and sucrose solutions C₁, C₂ and C₃ which are of different concentrations.

a) Label test tubes C₁, C₂ and C₃. Pour 5cm³ of each solution in the corresponding test tubes.

Peel specimen B and cut ^{two} ~~three~~ strips of the material each measuring 0.5cm x 0.5cm x 3.0cm. ^{Again carefully divided each strip into two equal strips lengthwise}



Drop a strip of material in each test tube and leave to stand for 30 minutes.

After 30 minutes, remove the strips from the test tubes and measure the length of each strip. Record the results in the table below. (4 marks)

	Concentration of Sucrose		
	C ₁ (0.5%)	C ₂ (1.0%)	C ₃ (1.0%)
Initial length of the strip in cm.	3.0 ✓	3.0 ✓	3.0 ✓
Final length of strip in cm	3.1 - 3.3 ✓	3.0 ✓	2.7 - 2.9 ✓
Difference in length in cm (subtract the initial length from the final length)	+0.1 - +0.3 ✓	0 ✓	-0.3 - -0.1 ✓

b) Explain the meaning of the following;

i) a difference in length of less than 0.0 cm.

(2 marks)

hence the cell sap is less concentrated than C₃ by osmosis
 The strip lost water to C₃ by osmosis
 reduced in length
 for C₃ is hypertonic / high concentration compared to cell sap in the strip therefore water moves from the strip to C₃ by osmosis hence reduced in length.

ii) a difference in length of more than 0.0 cm.

(2 marks)

Cell Sap of strip is more concentrated than C_1 ,
therefore water moved into the strip by osmosis
hence the strip increased in length!

C_1 is hypotonic and water moved into the strip
by osmosis

c) i) Name the process responsible for the results observed in (a) (1 mark)

osmosis ✓

01

ii) Name the importance of the process mentioned in a(i) above in the life of plants

~~Plants~~

(2 marks)

- makes cells turgid and that results in support. / Turgidity supports herbaceous plants.

→ Germinating seed obtains water by osmosis

→ opening and closing of the stomata is due to osmosis.

- Transport of water in the root and leaves.

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5 1/2

13

