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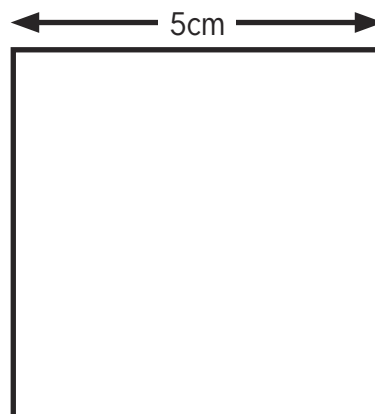
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Foxit Reader

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Name:

Edexcel Style

Combined Science GCSE

Plant Structures and Their Functions
(Levels 4–9)

Date:

Time allowed: 50mins

Question	Links to Student Progress Sheet	Score	Total marks Available
1	6.2		6
2	6.3		7
3	6.5		6
4	6.7, 6.8a, b		7
5	6.9a, b, 6.10, 6.12		15
6	6.13		9
Total			50

Score	Estimated Grade
47 – 50	9
40 – 46	8
33 – 39	7
28 – 32	6
24 – 27	5
20 – 23	4
0 – 19	U

Please be aware that these grade boundaries are Twinkl's own, and may not be in-line with Edexcel's own.

Area for Improvement:

1. (a) Complete the equation below.

(1)

_____ + water → glucose + _____

(b) The chemical formula for glucose is $C_6H_{12}O_6$.

Show the equation from part 1a as a **balanced** symbol equation.

(3)

(c) What is the name of the reaction shown in part 1a?

(1)

(d) Is this reaction exothermic or endothermic? Tick one box.

(1)

☐ exothermic

☐ endothermic

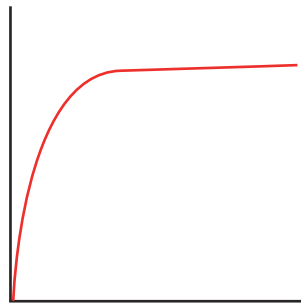
(Total for Question 1 = 6 marks)

2. (a) Describe how increasing the temperature affects the rate of photosynthesis in a plant.

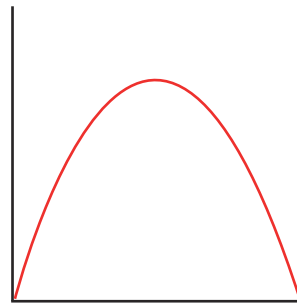
(2)

- (b) Two graphs are shown below. Which graph shows the effect of temperature on the rate of photosynthesis? Tick one box.

(1)



Graph A



Graph B

- ☐ graph A
☐ graph B

- (c) Explain the shape of the graph from question 2b which shows the effect of temperature on the rate of photosynthesis.

(4)

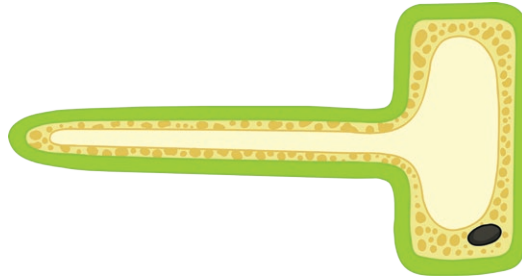
(Total for Question 2 = 7 marks)

3. Describe an investigation to observe the effect of light intensity on the rate of photosynthesis.

(6)

(Total for Question 3 = 6 marks)

4. (a) The diagram below shows a specialised plant cell.



Tick one box to show the name of this type of cell.

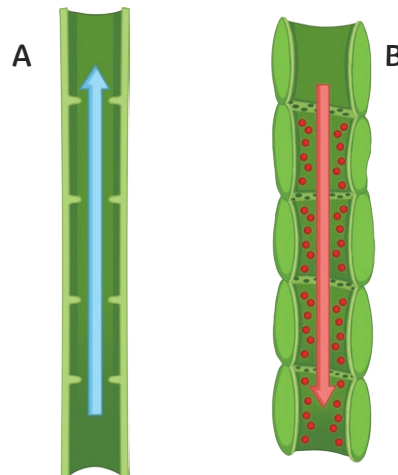
(1)

- ☐ ciliated epithelial cell
- ☐ root hair cell
- ☐ epithelial cell
- ☐ palisade cell

(b) Explain the function of the cell shown in part 4a, and how it is specifically adapted.

(3)

(c) The diagram below shows two tissues found in a plant, which are used to transport substances throughout the plant.



Tick the box which correctly names the parts labelled A and B on the diagram.

(1)

- ☐ A is a stem, B is a leaf
- ☐ A is a phloem, B is a xylem
- ☐ A is a root, B is an stem
- ☐ A is a xylem, B is phloem

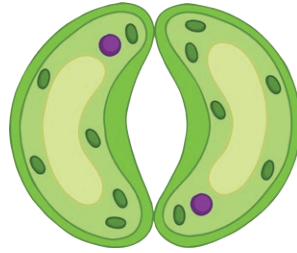
(d) Draw a line to connect the parts labelled in the diagram from part 4c, with a description of their function.

(2)

Tissue A	Transports water from the leaf to the roots.
	Transports water from the roots to leaf.
Tissue B	Transports sugar from the leaf to the rest of the plant.
	Transports sugar from the rest of the plant to the leaf.

(Total for Question 4 = 7 marks)

5. (a) What is the name of the part of the plant shown in the diagram below?



(1)

(b) What is the role of the part of the plant shown in question 5b? Tick one box.

(1)

- ☐ to prevent water loss
- ☐ to take in oxygen
- ☐ to take in carbon dioxide
- ☐ to allow a plant to respire

(c) What is the process of moving sucrose with a plant? Tick one box.

(1)

- ☐ transpiration
- ☐ translocation
- ☐ precipitation
- ☐ respiration

(d) What is transpiration?

(4)

(e) Explain how the following factors affect the rate of water uptake in a plant.

(6)

i) Light intensity:

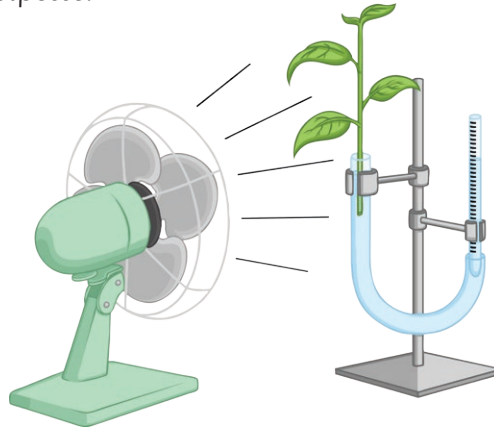
ii) Temperature:

(f) Give two risks of the investigation you have planned in part 5e.

(2)

(Total for Question 5 = 15 marks)

6. (a) Two students carried out an investigation to observe the effect of wind speed on the rate of transpiration. The apparatus the students used is shown below. Students adjusted the speed setting on the fan and recorded the amount of water absorbed by the plant, from the calibrated pipette.



What is the independent and dependent variables in this investigation?

(2)

Independent variable: Tick one box

- ☐ mass of plant
☐ volume of water lost
☐ wind speed
☐ number of bubbles

Dependent variable: Tick one box

- ☐ mass of plant
☐ volume of water lost
☐ wind speed
☐ number of bubbles

(b) The table below shows the data the students collected.

	Water loss (ml)			
Fan Speed Setting	Run 1	Run 2	Run 3	Mean Average
1	4.5	4	5	
2	6	6	7.5	
3	8	7.5	8.5	
4	10.5	11	12	
5	13	13.5	14	

Calculate the mean averages to complete the table.

(5)

(c) The students measured the water loss for on each fan setting for 5 minutes.

Calculate the rate of transpiration using the mean average water loss at fan setting 5.

(2)

Rate of transpiration = _____ (ml/min)

(Total for Question 6 = 9 marks)

TOTAL FOR PAPER = 50 MARKS