



Rewarding Learning

General Certificate of Secondary Education
2014

Centre Number

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Candidate Number

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GCSE Biology

Unit 1

Foundation Tier



[GBY11]

GBY11

FRIDAY 6 JUNE, AFTERNOON

TIME

1 hour 15 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided. Do not write outside the box, around each page or on blank pages.

Complete in blue or black ink only. **Do not write with a gel pen.**

Answer **all twelve** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is **80**.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in question **8(e)**.

8678

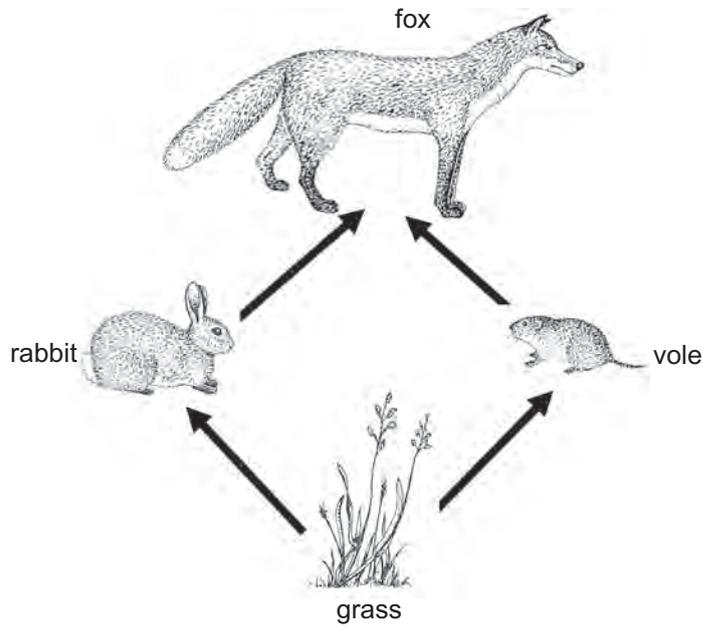


28GBY1101

1 (a) What is the source of energy for all food webs?

[1]

The diagram shows part of a food web.



Adapted from: M. Jones, and G. Jones, New Edition Biology, Cambridge University Press

Look at the diagram.

(b) What do the arrows in this food web show?

[1]

(c) The producer in this food web is grass.

Explain why producers are important in food webs.

[2]

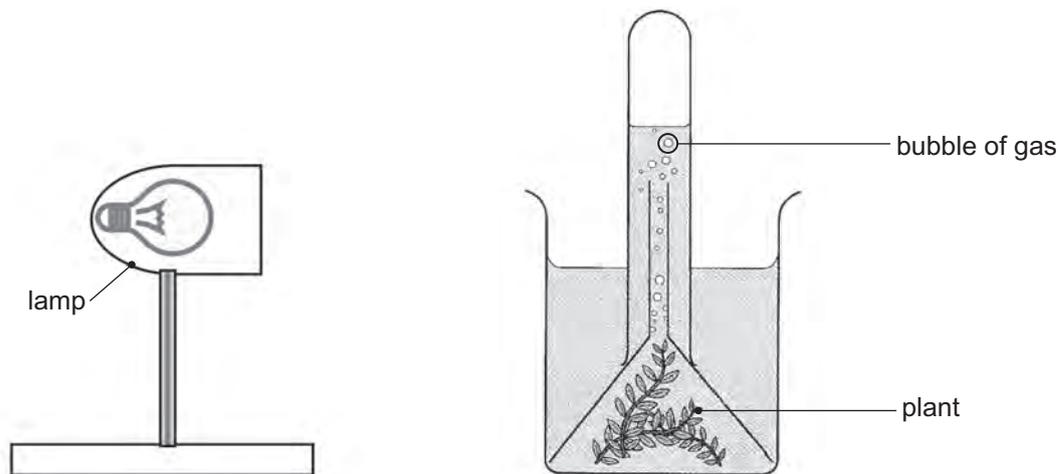
Examiner Only

Marks Remark

Total Question 1



3 The diagram shows apparatus used in a photosynthesis experiment.



© GCSE Biology for CCEA 2nd Edition by James Napier, published by Hodder Education, 2011.
ISBN 978-0340983805. "Reproduced by permission of Hodder Education".

Look at the diagram.

The lamp was placed at different distances from the plant.

(a) What factor does this change?

_____ [1]

(b) Photosynthesis was measured by counting the bubbles of gas given off by the plant.

(i) Name the gas in the bubbles.

_____ [1]

(ii) Suggest why measuring the volume of the gas would be more accurate than counting the bubbles.

_____ [1]

Examiner Only
Marks Remark



(iii) Name **one other** substance produced by the plant during photosynthesis.

[1]

(c) Photosynthesis takes place in part of a plant cell.

Draw a **circle** around the name of this part.

chromosome

chloroplast

cytoplasm

[1]

Examiner Only	
Marks	Remark

Total Question 3	

[Turn over

8678



28GBY1105

4 Complete the table to show the differences between animal, plant and bacterial cells.

Use a tick (✓) to show if the cell part is present and a cross (X) if it is absent.

Cell part	Cell		
	Animal	Plant	Bacterium
Chloroplast			X
Cell wall			✓
Cell membrane	✓		✓
Nucleus	✓	✓	

[6]

Examiner Only	
Marks	Remark
Total Question 4	





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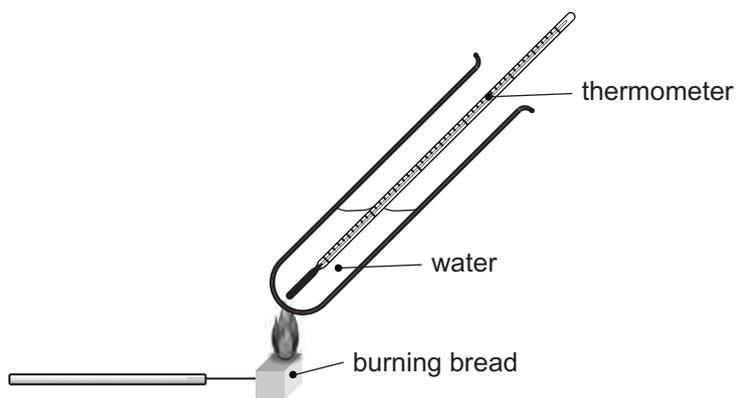
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8678



28GBY1107

- 5 (a) The diagram shows the apparatus used to compare the energy in three types of bread.



© CCEA

The results are shown in the table.

Type of bread	Temperature of water at start/ $^{\circ}\text{C}$	Temperature of water at end/ $^{\circ}\text{C}$	Rise in temperature of water/ $^{\circ}\text{C}$
White bread	19	38	19
Brown bread	20	35	
Soda bread	18	41	23

- (i) Complete the table by calculating the rise in temperature of the water caused by burning the brown bread.

Examiner Only	
Marks	Remark

[1]

- (ii) A man doing hard work eats a sandwich for his lunch.

Use the results in the table to help explain which type of bread he should choose.

_____ [2]



The table shows the contents of one slice of white bread and one slice of brown bread.

Content	White bread/g	Brown bread/g
Protein	1.7	2.9
Carbohydrate	17.5	15.0
Fat	0.7	0.6
Fibre	1.3	2.0
Salt	0.2	0.1

Look at this table.

- (b) Use evidence from this table to give **three** reasons why brown bread is healthier than white bread.

Explain each reason.

1. Evidence _____

Explanation _____

_____ [2]

2. Evidence _____

Explanation _____

_____ [2]

3. Evidence _____

Explanation _____

_____ [2]

Examiner Only

Marks Remark

Total Question 5

[Turn over

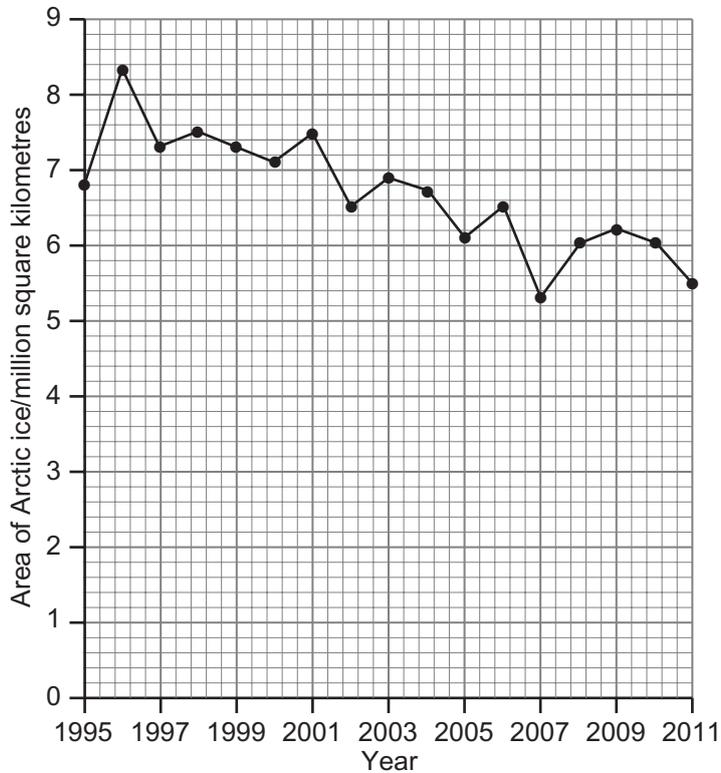
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28GBY1109

The increase of carbon dioxide in the atmosphere has affected the area of Arctic ice.

The graph shows changes in the area of Arctic ice.



© National Snow and Ice Data Center - Average Monthly Arctic Sea Ice Extent August 1979-2012

Look at the graph.

(ii) Draw a straight line of best fit to show the trend from 1995 to 2011. [1]

The decrease in the area of Arctic ice has harmful effects on the environment.

(iii) Suggest **two** of these harmful effects.

1. _____

_____ [1]

2. _____

_____ [1]

Examiner Only	
Marks	Remark

Total Question 6	

Total Question 6

[Turn over



7 The photographs show two areas in a woodland.

Area **A** has trees which keep their leaves all year round.
Area **B** has trees which lose their leaves in winter.

Area **A**



© W Broadhurst/ Science Photo Library

Area **B**



© Bob Gibbons/Science Photo Library

Pupils measured the biodiversity of each area in the woodland.

(a) Explain what is meant by biodiversity.

_____ [1]

(b) Pupils sampled the number of plant species and crawling insect species in ten places in each area of woodland.

(i) Name the apparatus used to sample the number of plant species.

_____ [1]

(ii) Name the apparatus used to sample the number of crawling insect species.

_____ [1]

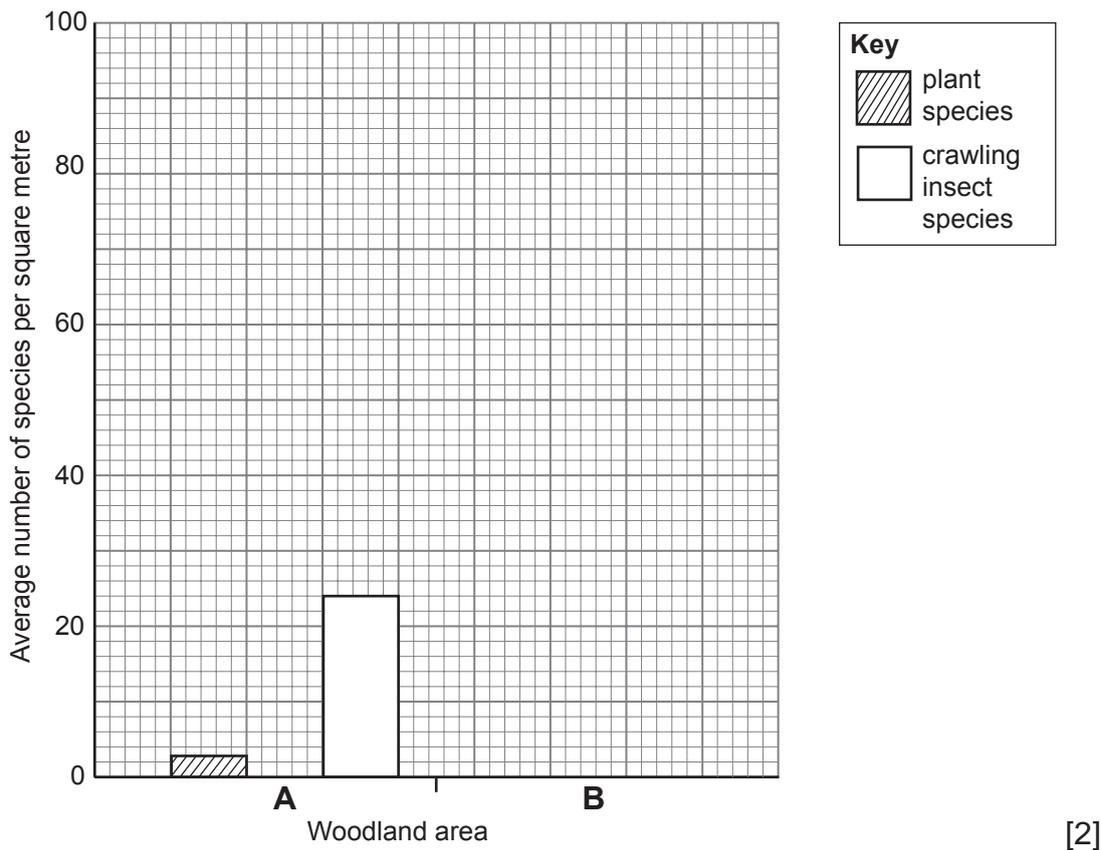
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Marks	Remark



The table shows the average number of species found in each area of woodland.

Woodland area	Average number per square metre	
	Plant species	Crawling insect species
A	3	24
B	10	82

(c) (i) Complete the bar chart of these results.



(ii) What do the results tell you about the biodiversity of the two areas in the woodland?

[2]

Examiner Only

Marks Remark



(iii) Environmental factors affecting the numbers of species can be biotic or abiotic.

Which **three abiotic** factors may have caused the difference in the number of species in these two woodland areas.

Place a tick (✓) in the appropriate boxes.

Disease

Light

Soil water

Minerals

Predation

Competition

[3]

Examiner Only

Marks

Remark

Total Question 7

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28GBY1114



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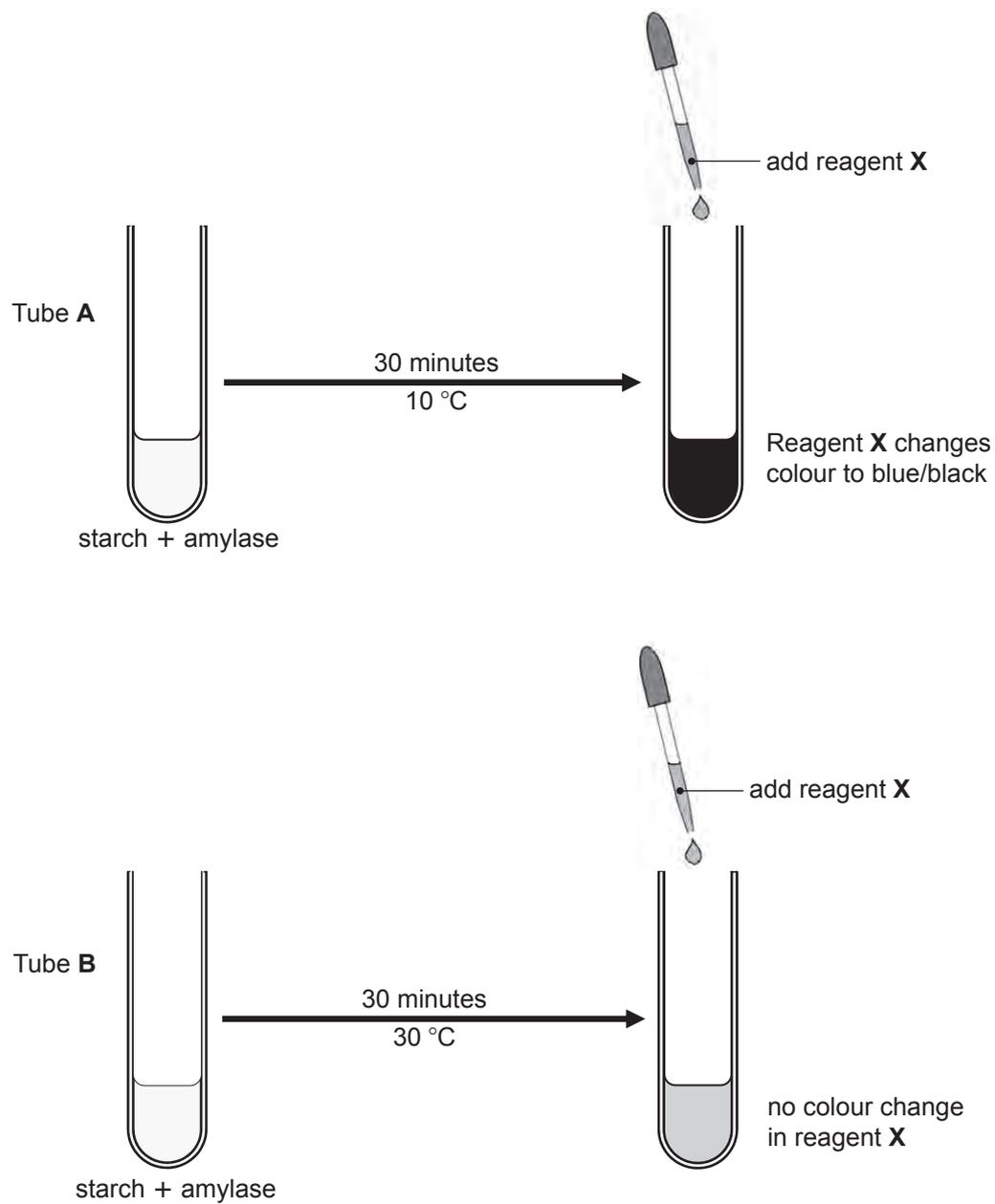
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28GBY1115

8 The diagram shows an experiment on the action of the enzyme amylase.



Look at the diagram.

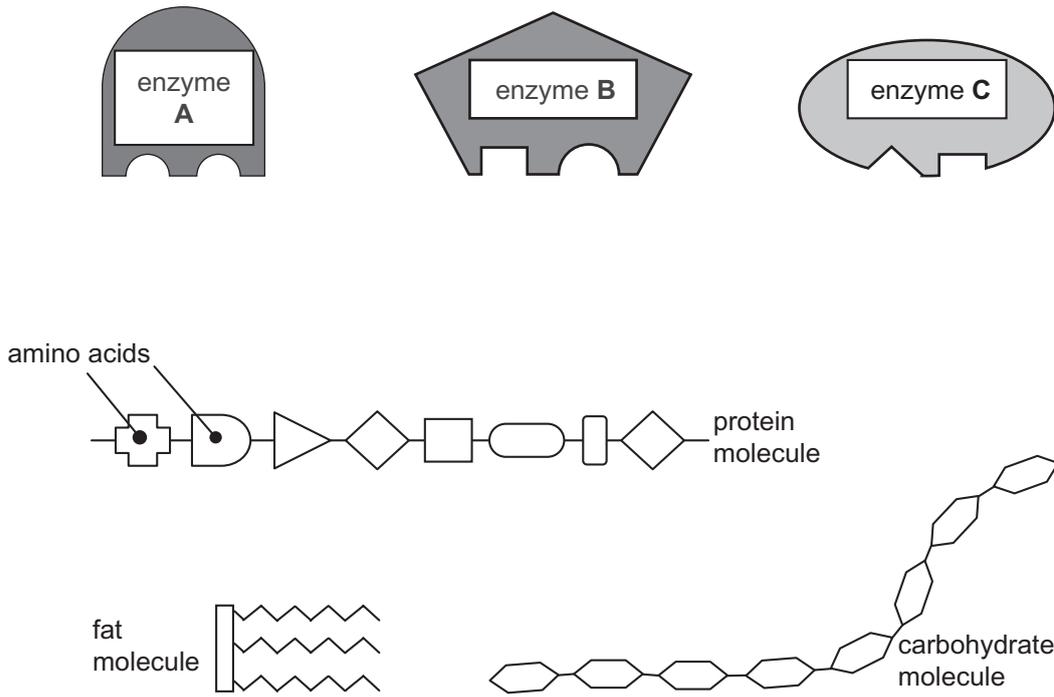
(a) Name reagent X.

[1]

Examiner Only
Marks Remark



The diagram shows enzymes and food molecules.



Examiner Only

Marks

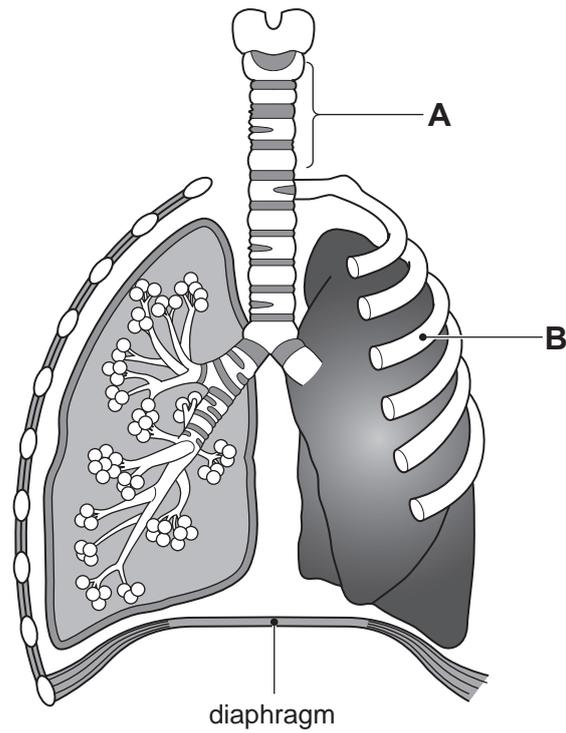
Remark

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28GBY1118

9 The diagram shows part of the respiratory system.



© OCR Gateway GCSE Biology by S Broadley, S Hocking, M Matthews, published by Oxford University Press, ISBN 978 0199135684

Look at the diagram.

(a) Name parts A and B.

A _____ [1]

B _____ [1]

The diaphragm changes when you breathe in and out.

(b) Describe these changes.

Breathe in _____

Breathe out _____

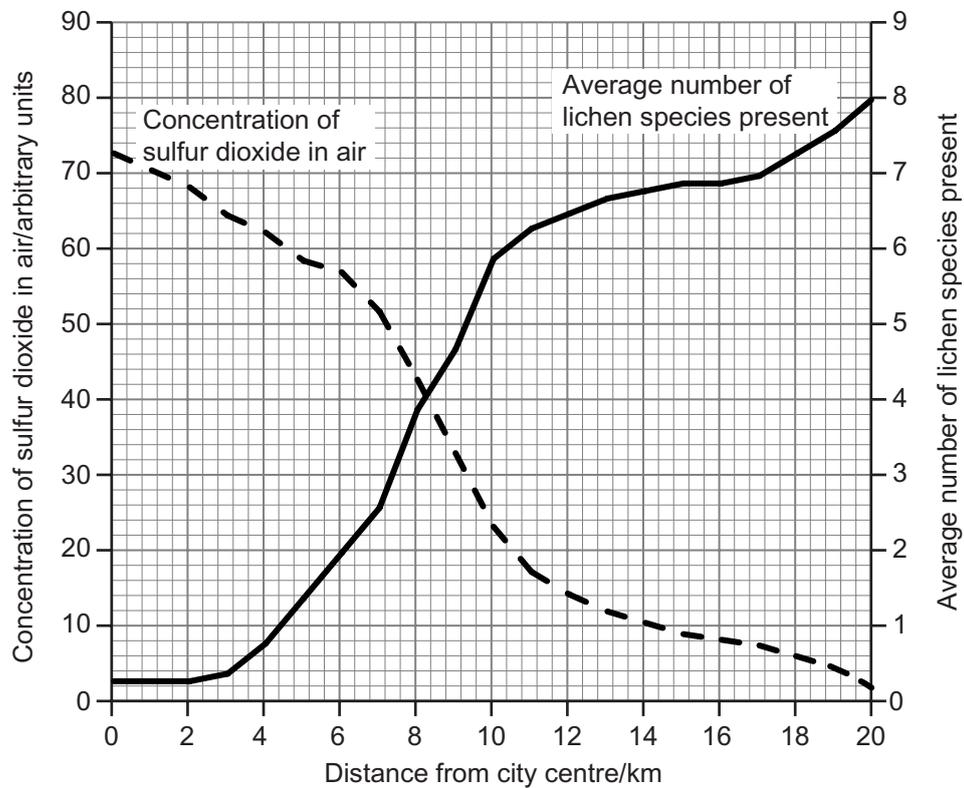
_____ [2]

Examiner Only
Marks Remark

Total Question 9



- 11 The graph shows the concentration of sulfur dioxide in the air and the average number of lichen species present on trees at different distances from a city centre.



Look at the graph.

- (a) The concentration of sulfur dioxide in the air changes as you move away from the city centre.

Describe the change.

[1]

Examiner Only

Marks Remark



(b) The graph shows that some species of lichens tolerate high concentrations of sulfur dioxide in the air.

Give data from the graph which supports this conclusion.

_____ [2]

(c) Give **one** source of sulfur dioxide in air.

_____ [1]

(d) Species such as lichens can be used to monitor air pollution.

What term is used to describe species like these?

_____ [1]

Examiner Only	
Marks	Remark

Total Question 11	

[Turn over

8678



28GBY1123

- 12 The table shows the loss of vitamin C content of four types of salad leaves stored for 10 days after picking.

Type of salad leaf	Vitamin C content per 100 g of salad leaves/mg		Percentage loss of vitamin C
	Day 0	Day 10	
Green lettuce	0.10	0.09	
Wild rocket	72.97	3.55	95.10
Lamb's lettuce	59.18	13.61	77.00
Red lettuce	0.07	0.07	0.00

Look at the table.

- (a) Calculate the percentage loss of vitamin C content in green lettuce.

Show your working.

Write your answer in the table. [2]

- (b) Use data from the table to explain which type of salad leaf is most suitable for use after storing for 10 days.

[2]

Examiner Only

Marks

Remark



(c) A bag of fresh mixed salad leaves has a vitamin C content of 20 mg per 100 g.

A portion of fresh salad leaves weighs 60g.

(i) Calculate the mass of vitamin C in a 60g portion of fresh mixed salad leaves.

Show your working.

Mass _____ mg [1]

An adult is advised to have a daily intake of 50 mg of vitamin C.

(ii) What percentage of their daily vitamin C is provided by this portion of fresh mixed salad leaves?

Show your working.

Percentage _____ [1]

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Marks	Remark

Total Question 12	

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28GBY1126





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Question Number	Marks
1	
2	
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12	

Total Marks	
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Examiner Number

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28GBY1128

