

	(Centr	e Nu	mber
,	Can	didat	e Nu	mber
•	Can	didat	e Nu	mber

General Certificate of Secondary Education 2023

Biology

Unit 1

Foundation Tier



[GBL11]

GBL11

TUESDAY 16 MAY, MORNING

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 boxed area on each page or on blank pages.

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

Answer all ten questions.

INFORMATION FOR CANDIDATES

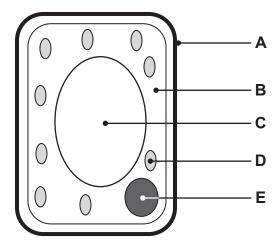
The total mark for this paper is **75**.

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 7(b).



1 The diagram shows some structures found in a plant cell.



Source: Principal Examiner

Reversion

20 7 Loaning Research

Look at the diagram.

(a) Complete the table to give the name or function of the structures labelled A to E.

Structure	Name	Function
Α		provides support
В	cytoplasm	
С		contains cell sap
D	chloroplast	
E	nucleus	
		[5]

(b) Give the letters of **two** structures in the diagram which are also found in animal cells.

and	[1]
	L - J



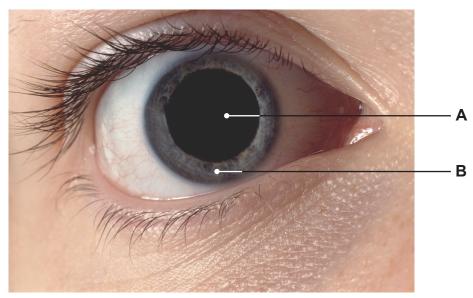
2	? (a)	The diagram shows an enzyme.	
		Source: Principal Examiner	
		Look at the diagram.	
		(i) Name the part of the enzyme labelled X .	
			[1]
		(ii) Which of the following substrates, A, B or C, would this enzyme break down?	
		A B C	
		Source: Principal Examiner	
		Substrate	[1]
		(iii) Name this model of enzyme action.	
			[1]
	(b)	Name the type of enzyme which breaks down	
		protein.	
		fat	[2]
			ITurn over
			ιιιικη Ανδι

Totality

Totali

13402

3 The photograph shows the front of a human eye in dim light.



Source: © Adam Hart-Davis / Science Photo Library

Downing Co

[2]

Look at the photograph.

(a)	Name parts A and B .	

Α					

(b) (i) Describe the change to part A when a bright light is switched on.

[1



_				
Light enter	ng the eye is refra	acted (bent) on	to the retina.	
(c) Name	two parts of the e	ye which refrac	t (bend) light.	
1			-	
_			_	
2				
2				
2				
2				

[Turn over

13402



			+				light ——>	11			+	glucose
			!				. ,					
(b)	(i)	Name	the	compl	lex car	bohy	drate use	d by pla	nts to sto	ore glu	icos	se.
					1 1 1							
	(ii)			ne oth otosynt		/ a pla	int uses th	e glucos	se produ	iced		
(c)				equatio proces		elp yo	u explain v	why pho	tosynthe	esis is a	an	
(c)						elp yo	u explain v	vhy pho	tosynthe	esis is a	an	
(c)						elp yo	u explain v	vhy pho	tosynthe	esis is a	an	
(c)						elp yo	u explain v	vhy pho	tosynthe	esis is a	an	
(c)						elp yo	u explain v	vhy pho	tosynthe	esis is a	an	
(c)						elp yo	u explain v	vhy pho	tosynthe	esis is a	an	
(c)						elp yo	u explain v	why pho	tosynthe	esis is a	an	

Reversion

Day Learning

Control

Parametring

Described Forwarding

Rowarding 2 Learning

Powerthy

Theorythy

Theorythy

Theorythy

Theorythy

Theorythy

Rewarding Learning

Remarking Junearing

G.

Posserdor J. seming G. S. Reserdor Posserdor J. Learning

Reasoning 2 Learning

Russich Die Junity J. Lewring Fowardin

Rowarding 7 Learning Rowarding

DED 1 Learning

Theoreting
Theoreting
Theoreting
Theoreting
Theoreting

D y Learning

Rowardin

Reversion y Learning Reversion

20 7 Learning

Powersing

Rowersing

The control of the control of

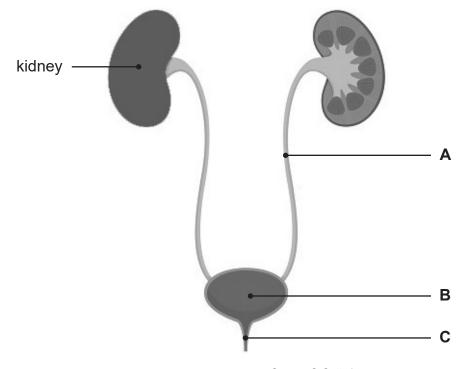
Rowardin

p Leaving
Reserving
Leaving
Reserving
Reserving

Parametring
Towarding
Rowarding
Towarding



5 The diagram shows part of the excretory system.



Source: © Getty Images

Look at the diagram.

(a) Name parts A, B and C.

A

B _____

С

[Turn over

[3]

13402

To Ready |



(b) The body has to balance the volume of water it takes in with the volume of water it loses.

Reversion

Do a Loaving

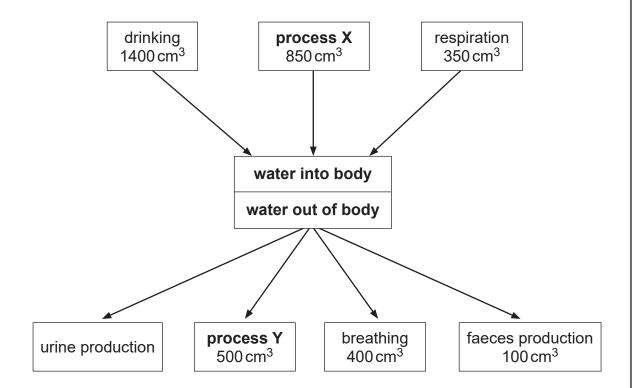
20

20

Dearring

20

The diagram shows the volume of water taken in and lost by different processes over 24 hours.



Look at the diagram.

(i) Name processes X and Y.



(ii)	Calculate the volume of water lost in urine.
	Show your working.
	Volume of urine cr
	volume of drineCi
(iii)	Suggest why the volume of water lost by process Y is lower in winter.

[Turn over

13402



6 The photographs show three stages in the life cycle of a sustainable forest.

Stage A

Research

Display

Learning

Color

Research

Research
Parties
Parti



Stage B



Stage C



Source: Principal Examiner



Loc	k at the photographs.	
Sta	ge C shows recently planted trees.	
(a)	Name the process of planting new trees.	[1]
(b)	Suggest how spreading out the trees when planting helps them grow better.	
		[2]
(c)	Describe how planting more sustainable forests affects the level of oxygen at carbon dioxide in the atmosphere.	nd
(c)		nd
(c)	carbon dioxide in the atmosphere.	
	carbon dioxide in the atmosphere. oxygen	
Mai	carbon dioxide in the atmosphere. oxygen carbon dioxide	
Mai	carbon dioxide in the atmosphere. oxygen carbon dioxide ny forests have a variety of species of trees planted.	
Mai	carbon dioxide in the atmosphere. oxygen carbon dioxide ny forests have a variety of species of trees planted. Suggest two ways this increases biodiversity. 1	
Mai	carbon dioxide in the atmosphere. oxygen carbon dioxide ny forests have a variety of species of trees planted. Suggest two ways this increases biodiversity.	

[Turn over

13402



7	(a)		ormone is a chemical messenger which is released by a gland and sported to a target organ.	
		(i)	Name the hormone which controls blood glucose concentration.	
				[1]
		(ii)	Name the gland which produces this hormone.	
				[1]
		(iii)	Name the target organ for this hormone.	
				[1]

Reversion

Do Loaning

Loaning

Reaserable

Describing

Constitution

Researcher

Learning

Rowarding 20 1

Powersting
Theoretical
Theoretical
Theoretical
Theoretical
Theoretical
Theoretical
Theoretical

Roserding January

Remarking Junearing

Flowerston

Flowerston

Flowerston

Flowerston

Flowerston

Flowerston

Flowerston

Rewarding 20

Research

Porting

Control

Roserch

Porting

Control

Roserch

Ro

D y Learning
Research

Towards

Roserds

Jeaning

Reserving

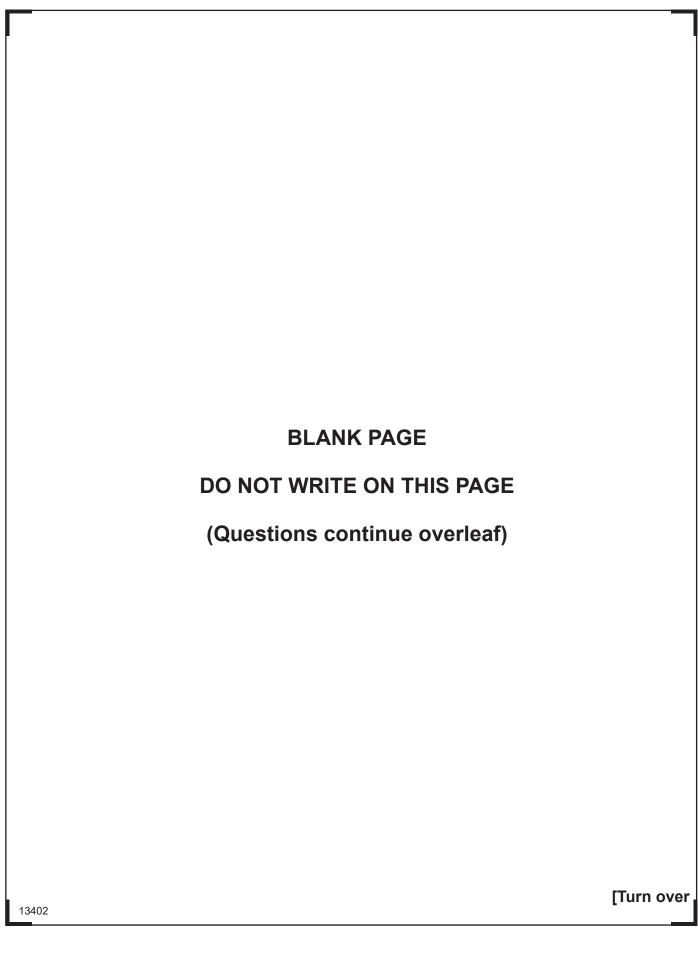
D y Learning
Reversion

Donas Control of Paras Control of Paras

20 7 Levarritry

Rewarding Powersing Spanish



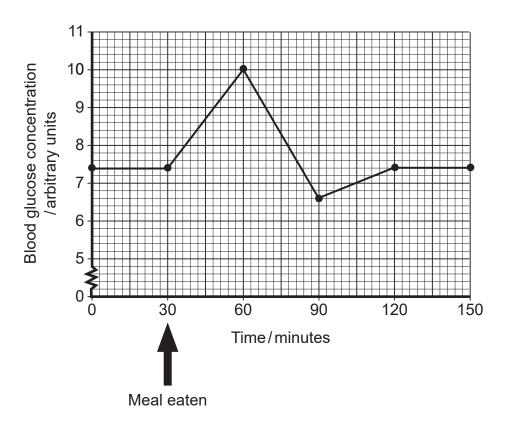


Reserving I

Reser



The graph shows the effect of eating a meal on the blood glucose concentration of a healthy student.



Look at the graph.

(b) • Describe how blood glucose concentration changes during the first 60 minutes **after** eating a meal.

Use data from the graph to support your answer.

- Give the time taken for blood glucose concentration to return to normal **after** eating a meal.
- Explain how the hormone returns blood glucose concentration to normal.



Description		
Description		
		
Гіте		
Explanation		
	-	
	-	
		[6

Totality

Totali



Loo	lettuce → snail → thrush (bird) k at the diagram.	
(i)	Describe the role of the lettuce in this food chain.	
		[2
(ii)	Name the secondary consumer in this food chain.	[1
(iii)	What do the arrows represent in a food chain?	[4
		[1

Reversion

Day Learning

Control

Parametring

Described Forwarding

Roserving

Roserving

20

y Learning

Powerthy

Theorythy

Theorythy

Theorythy

Theorythy

Theorythy

Rewarding Learning

Remarking Junearing

G.

Posserdor J. seming G. S. Reserdor Posserdor J. Learning

Reasoning 2 Learning

Russich Die Junity J. Lewring Fowardin

Rowarding 7 Learning Rowarding

DED 1 Learning

Theoreting
Theoreting
Theoreting
Theoreting
Theoreting

20 7 Learning

Powerding Control Research

20 7 Learning

Roserting

To Learning

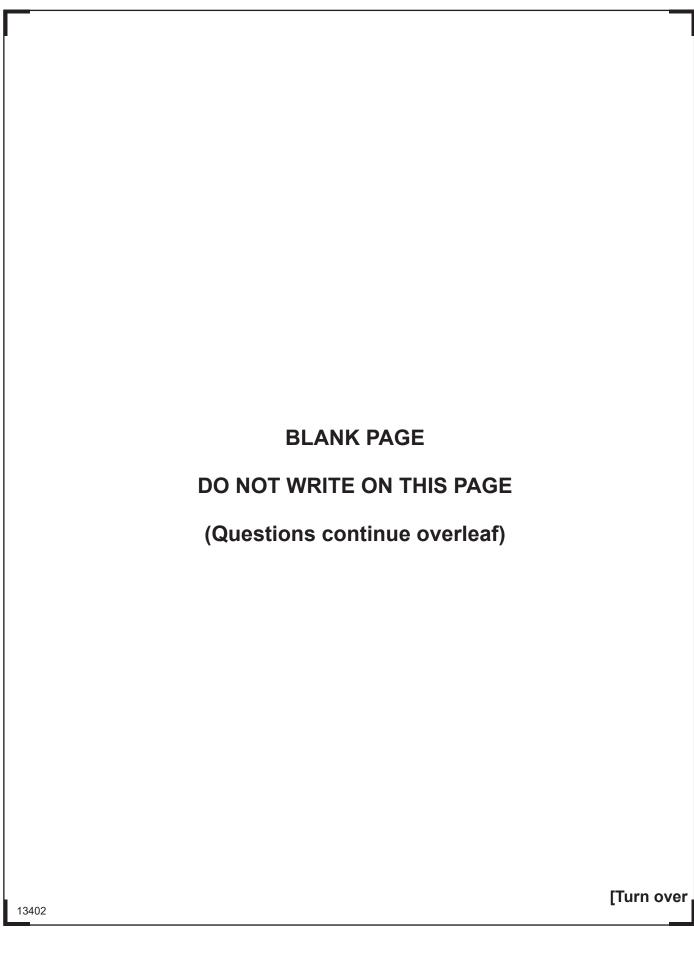
Rowardin

D y Learning
Reversion

Donasting
Leaving
Research

Parametring
Towarding
Rowarding
Towarding





Reserving I

Reser



- (b) A group of students investigated this food chain by:
 - estimating the population size of each organism.
 - calculating the mean biomass of each organism.
 - calculating the biomass of the population of each organism.

The table shows their results.

Organism	Population size	Mean biomass of each organism/g	Biomass of population/g
Lettuce	40		6000
Snail	100	16	1600
Thrush	1	100	100

Look at the table.

(i) Complete the table by calculating the mean biomass of **one** lettuce.

Show your working.

			a	[2]

Rewards 20 1 Loaning

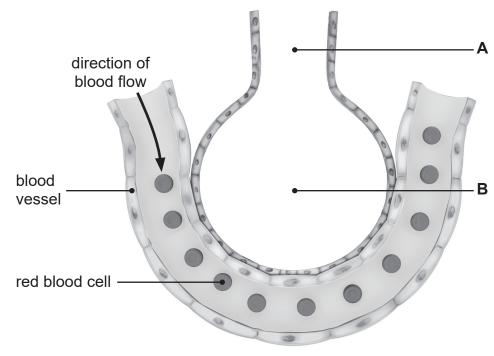


	(ii) Use the information in the table to draw a pyramid of biomass for this food chain.	
	Use the scale of 1 small square to represent 100 g.	
	Use the key shown.	
	Key: Lettuce Snails Thrushes	
		[3]
	The students concluded the biomass decreased at each trophic level in the food chain because there was a decrease in energy available.	
	(c) Give two reasons why the energy available decreases at each trophic level in	
	this food chain.	
	1	
	1	
	···	
	2	
	2	
	2	
	2	
	2	
	2.	[2]
13402	2	[2]
13402	2.	[2]
13402	2	[2

Learning



9 The diagram shows part of the respiratory system.



Source: © Getty Images

Reversion

Downership Co.

(a)	Name	parts A and B .
(u	INGILIC	parto A and D.

A _	
В	[2]

(b) On the diagram, draw an arrow to show the movement of oxygen when gas exchange occurs during **breathing in**. [1]



(c)		Use the diagram to help describe and explain two ways the respiratory system is adapted for gas exchange.				
	1.	Description				
		Explanation				
	2.	Description				
		Explanation				
		[4]				

[Turn over

13402



10 (a) The photograph shows a Sumatran tiger. It lives in forests on the island of Sumatra in Indonesia.



Source: © Getty Images

Reversion

Donardo 2 Loaning 2 Loaning

20 7 Learning

DE Leaving

Table 1 shows the change in the population of Sumatran tigers on the island over a period of 40 years.

Table 1

Year	Number of Sumatran tigers
1980	1000
1990	850
2000	750
2010	625
2020	495

Source: Adapted from © Project Ark Foundation



(i)	What is meant by the term 'population'?
	[1]
Loc	k at Table 1 .
(ii)	Calculate the percentage decrease in the number of Sumatran tigers from 1990 to 2010 .
	Show your working.
	% [3]
13402	[Turn over



(b) Table 2 shows the area of forest on the island of Sumatra between 1990 and 2010.

Table 2

Year	Area of forest/million hectares
1990	21
2000	16
2010	13

Source: Adapted from www.news.mongabay.com/2012/08/

Reversion

Day Louving

(i)	Use evidence from Table 1 and Table 2 to suggest and explain what may have caused the change in the population of Sumatran tigers.
	[2]
(ii)	Suggest one other cause of this change in the population of Sumatran tigers.
	[1]
(iii)	Suggest one government initiative which could be introduced to protect the population of Sumatran tigers.
	[1]

Source for Table 2: "Mapping and monitoring deforestation and forest degradation in Sumatra (Indonesia) using Landsat time series data sets from 1990 to 2010" © Belinda Arunarwati Margono et al 2012. Environ. Res. Lett. 7 034010DOI 10.1088/1748-9326/7/3/034010 Published 19 July 2012



THIS IS THE END OF THE QUESTION PAPER **BLANK PAGE** DO NOT WRITE ON THIS PAGE 13402

Reserving I

Reser





Revertin

Downing Co

Parting
Powersky
Powersky
Powersky
Rowersky
Rowersky

20 7 Lecambry

Romanding

Poly

P

Remarking Learning

20

DE J. Learning

DED ; Learning

20

20

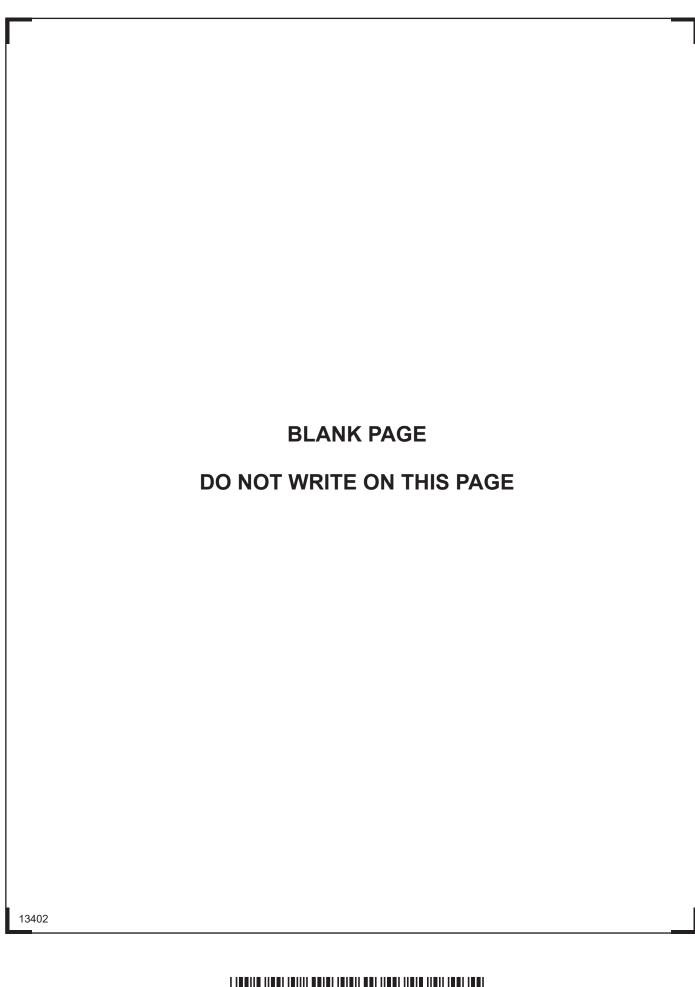
20

G.

Do J. Loaning

20 7 Levarritry







Sources: Images © CCEA unless otherwise stated.		
Sources: Images © CCEA unless otherwise stated.		
DO NOT WRITE ON THIS PAGE		
	For Exa	miner's
	For Exa use Question Number	only
	use Question	only
	Question Number	only
	Question Number 1 2 3	only
	Question Number 1 2 3	only
	Question Number 1 2 3 4 5	only
	Question Number 1 2 3 4 5	only
	Question Number 1 2 3 4 5 6 7	only
	Question Number 1 2 3 4 5 6 7 8	only
	Question Number 1 2 3 4 5 6 7	only

Total Marks

Examiner Number

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.

13402/11

