

FOR OFFICIAL USE

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G

KU	PS

Total Marks

**0300/401**

NATIONAL  
QUALIFICATIONS  
2008

TUESDAY, 27 MAY  
9.00 AM – 10.30 AM

**BIOLOGY**  
STANDARD GRADE  
General Level

**Fill in these boxes and read what is printed below.**

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day Month Year

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Scottish candidate number

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Number of seat

- 1 All questions should be attempted.
- 2 The questions may be answered in any order but all answers are to be written in the spaces provided in this answer book, and must be written clearly and legibly in ink.
- 3 Rough work, if any should be necessary, as well as the fair copy, is to be written in this book. Additional spaces for answers and for rough work will be found at the end of the book. Rough work should be scored through when the fair copy has been written.
- 4 Before leaving the examination room you must give this book to the invigilator. If you do not, you may lose all the marks for this paper.







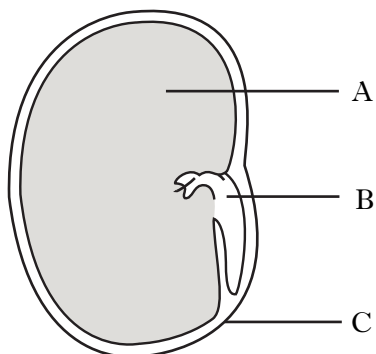




Marks

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4. (a) The diagram shows the internal structure of a broad bean seed.



Which letter indicates the food store of the seed?

\_\_\_\_\_

1

(b) From the list below, underline **two** factors needed for all seeds to germinate.

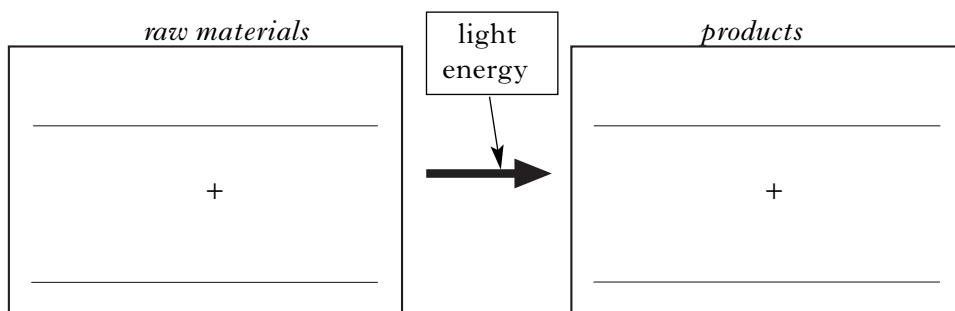
List    water        carbon dioxide        light        oxygen

1

Marks

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5. (a) Complete the word equation for photosynthesis.



2

(b) One of the products of photosynthesis may be converted into a storage carbohydrate in the plant. Name this storage carbohydrate.

\_\_\_\_\_

1

(c) Plants exchange gases with the air during photosynthesis.

Name the openings which allow gases to pass into and out of the leaf.

\_\_\_\_\_

1

(d) What substance in green leaves absorbs the light energy for photosynthesis?

\_\_\_\_\_

1

[Turn over









<i>Marks</i>	KU	PS
<b>1</b>		
<b>1</b>		
<b>1</b>		

**8. (continued)**

(b) Blood is made of a liquid called plasma which contains red and white cells.

(i) What is the main function of the red blood cells?

\_\_\_\_\_

(ii) State **one** function of plasma.

\_\_\_\_\_

(c) Name the blood vessel that carries oxygen to the heart muscle.

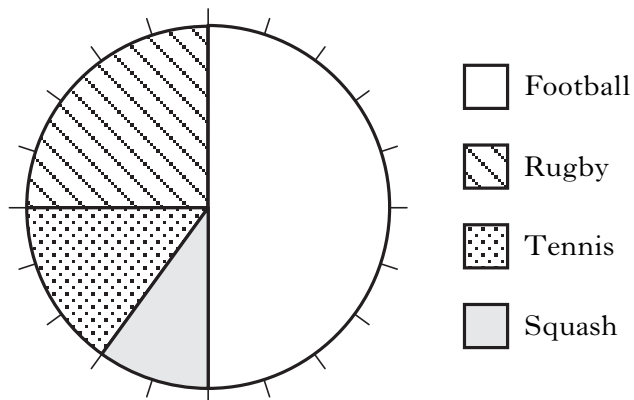
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**[Turn over**

Marks

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1	
1	
1	

9. The pie chart shows the proportions of injuries resulting from different sports recorded at a sports injury clinic.



- (a) Which **one** of the following statements is correct?

Tick (✓) the correct box

- More people were injured playing squash than tennis
- More people were injured playing rugby than football
- Fewer people were injured playing squash than rugby
- Fewer people were injured playing football than tennis

- (b) Which sport resulted in 15% of the total injuries?

\_\_\_\_\_

- (c) The number of injuries from playing squash was 32.

How many injuries resulted from playing rugby?

*Space for calculation.*

\_\_\_\_\_

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10. (a) Water regulation involves a balance of gains and losses.

Give **one** method of water gain and **one** method of water loss in a mammal.

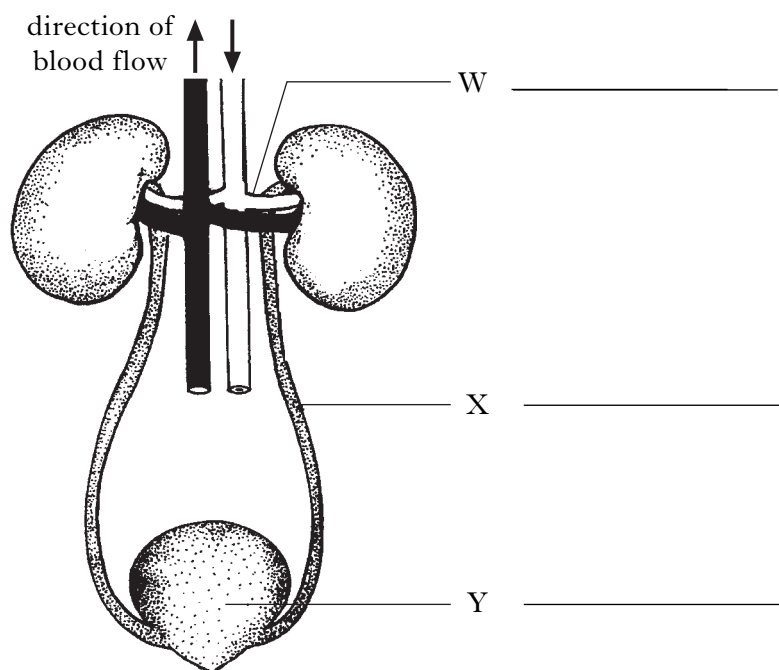
Water gain \_\_\_\_\_

Water loss \_\_\_\_\_

1

(b) The diagram shows the urinary system of a human.

Name structures W, X and Y on the diagram.



2

(c) Underline one alternative in each bracket to make the sentence correct.

Kidneys produce urine by  $\left\{ \begin{array}{l} \text{filtration} \\ \text{absorption} \end{array} \right\}$  of blood and the  $\left\{ \begin{array}{l} \text{osmosis} \\ \text{reabsorption} \end{array} \right\}$

of useful substances such as  $\left\{ \begin{array}{l} \text{glucose} \\ \text{oxygen} \end{array} \right\}$ .

2

(d) Other than water and salt, name a waste product that is removed from the body in the urine.

\_\_\_\_\_

1

[Turn over

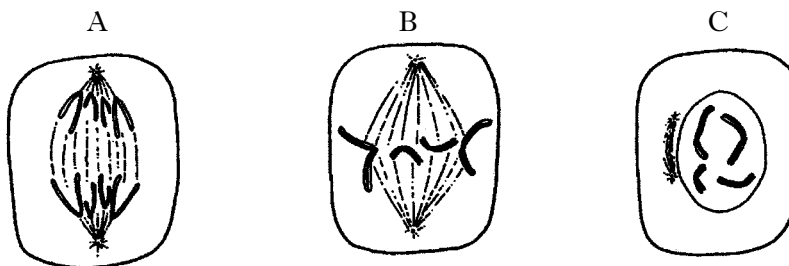
Marks

11. (a) Complete the table by entering the correct word for each description.

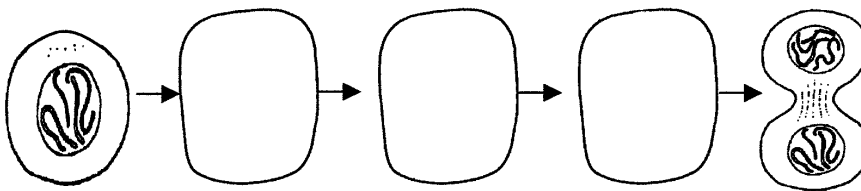
<i>Description</i>	<i>Word</i>
A substance used to make cell structures show up more clearly under a microscope.	
The movement of a substance from a high concentration to a lower concentration.	
Any substance which speeds up a reaction and is unchanged after the reaction.	
The structure which controls the movement of a substance into or out of a cell.	

3

(b) Diagrams A, B and C represent stages of cell division.



(i) Add the letters A, B and C to the empty cells below to show the correct order in which they occur.



1

(ii) What name is given to this process?

\_\_\_\_\_

1

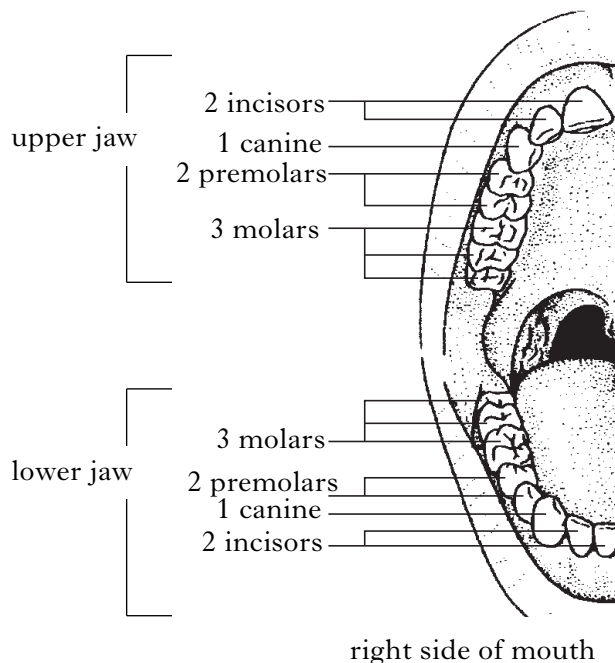


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13. The dental formula of an animal describes the number of each type of tooth on the upper and lower jaw of one side of its mouth.

The diagram explains the dental formula for an adult human.



$$\text{Dental formula} = \text{incisors (I)} \frac{2}{2}, \text{ canine (C)} \frac{1}{1}, \text{ premolars (P)} \frac{2}{2}, \text{ molars (M)} \frac{3}{3} = 16$$

$$\text{Total number of teeth} = 16 \times 2 = 32$$

The table below gives the dental formulae for some animals.

<i>Animal</i>	<i>Dental formula</i>				<i>Total number of teeth</i>
Dog	I $\frac{3}{3}$	C $\frac{1}{1}$	P $\frac{4}{4}$	M $\frac{2}{3}$	42
Sheep	I $\frac{0}{3}$	C $\frac{0}{1}$	P $\frac{3}{3}$	M $\frac{3}{3}$	32
Rabbit	I $\frac{2}{1}$	C $\frac{0}{0}$	P $\frac{3}{2}$	M $\frac{3}{3}$	

- (a) (i) Complete the table to show the total number of teeth for a rabbit. **1**

- (ii) Which animal in the table has only 2 canine teeth?

\_\_\_\_\_

**1**



<i>Marks</i>	KU	PS
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**13. (continued)**

(b) A puppy has a total of 12 incisor, 4 canine, 12 premolar and 0 molar teeth evenly distributed between the upper and lower jaws.

Complete the following dental formula for a puppy.

I —      C —      P —      M —

**1**

**[Turn over**







Marks	KU	PS
1		
1		
1		

**16. (continued)**

(b) Complete the following sentences by underlining the correct option in each bracket.

Pepsin works best at pH  $\left\{ \begin{array}{l} 3 \\ 7 \\ 11 \end{array} \right\}$  which is  $\left\{ \begin{array}{l} \text{acidic} \\ \text{neutral} \\ \text{alkaline} \end{array} \right\}$ .

Catalase works best at pH  $\left\{ \begin{array}{l} 3 \\ 7 \\ 11 \end{array} \right\}$  which is  $\left\{ \begin{array}{l} \text{acidic} \\ \text{neutral} \\ \text{alkaline} \end{array} \right\}$ .

(c) Name the substance from which all enzymes are made.

\_\_\_\_\_

**[Turn over**









<i>Marks</i>	KU	PS
<b>1</b>		
<b>1</b>		
<b>1</b>		

**18. (continued)**

- (c) (i) Name the type of micro-organism used in the manufacture of yoghurt from milk.

\_\_\_\_\_

- (ii) Explain why containers are sterilised before being used for making yoghurt.

\_\_\_\_\_

- (d) Micro-organisms carry out fermentation of the sugars in milk. What effect does this have on the milk?

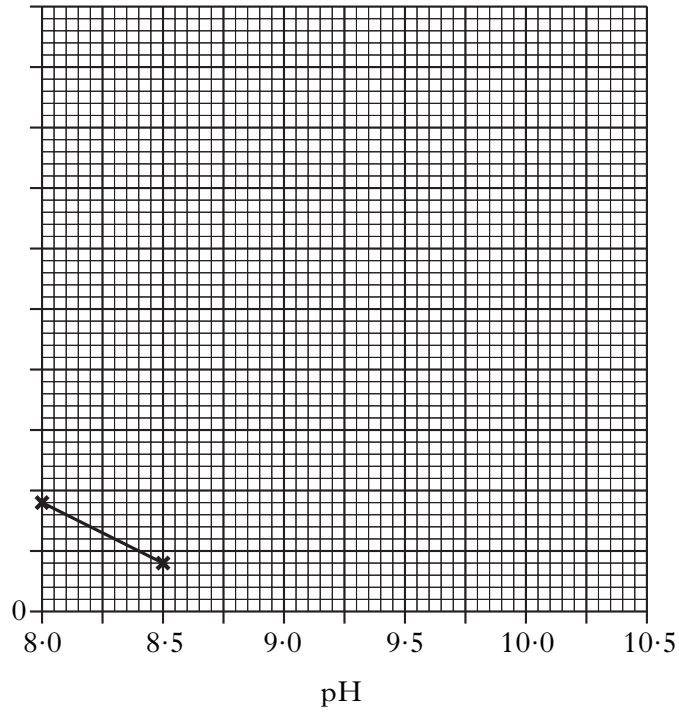
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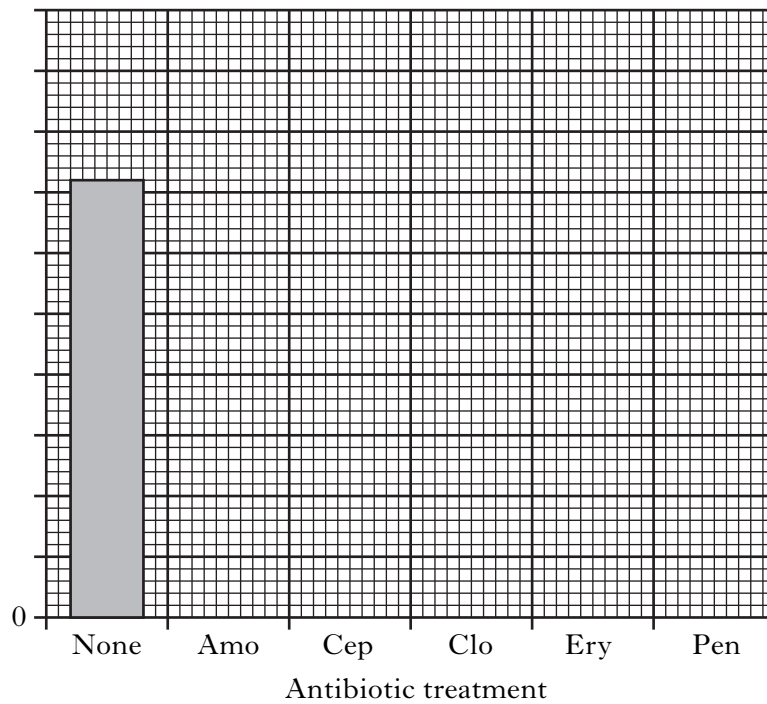


SPACE FOR ANSWERS  
AND FOR ROUGH WORKING

ADDITIONAL GRAPH PAPER FOR QUESTION 16(a)(i)

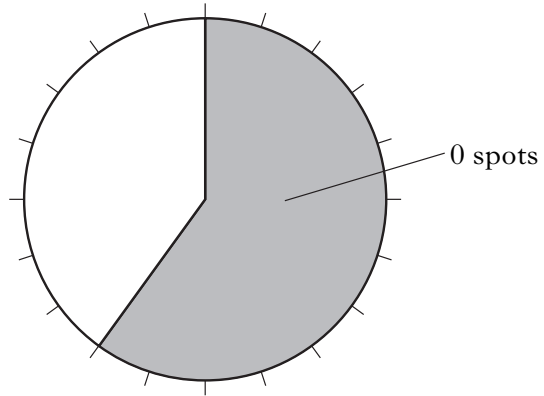


ADDITIONAL GRAPH PAPER FOR QUESTION 17(b)(v)



SPACE FOR ANSWERS  
AND FOR ROUGH WORKING

ADDITIONAL CHART FOR QUESTION 19(a)(ii)



SPACE FOR ANSWERS  
AND FOR ROUGH WORKING

SPACE FOR ANSWERS  
AND FOR ROUGH WORKING

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