



Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

**Level 3 Certificate/Extended
Certificate**

APPLIED SCIENCE

Unit 1 Key Concepts in Science

Section A – Biology

ASC1/B

Tuesday 11 June 2019 Afternoon

**Time allowed: 1 hour 30 minutes. You are
advised to spend approximately 30
minutes on this section.**

**At the top of the page, write your
surname and other names, your centre
number, your candidate number and add
your signature.**

[Turn over]



For this paper you must have:

- **a calculator**
- **Formulae Sheet.**

INSTRUCTIONS

- **Use black ink or black ball-point pen.**
- **Answer ALL questions in each section.**
- **You must answer the questions in the spaces provided. Do not write on blank pages.**
- **If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).**
- **Do all rough work in this book. Cross through any work you do not want to be marked.**

INFORMATION

- **You will be provided with a copy of the Formulae Sheet.**
- **There are three sections in this paper:
SECTION A – Biology
SECTION B – Chemistry
SECTION C – Physics.**
- **The marks for questions are shown in brackets.**
- **The maximum mark for this paper is 60 and the maximum mark for this section is 20.**

ADVICE

Read each question carefully.

DO NOT TURN OVER UNTIL TOLD TO DO SO



SECTION A – BIOLOGY

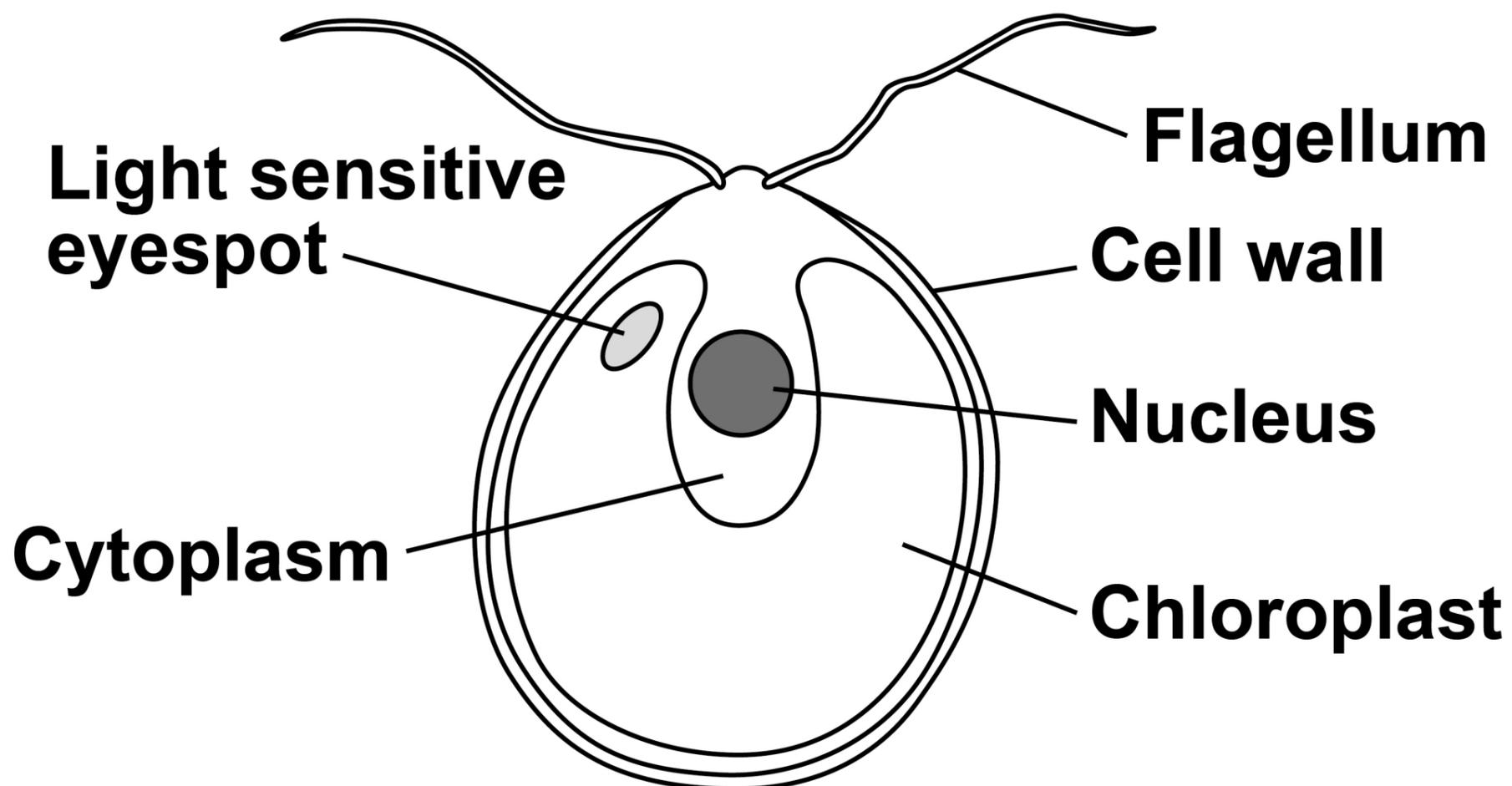
Answer ALL questions in this section.

0	1
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Biologists study cell structure.

FIGURE 1 shows an algal cell.

FIGURE 1



0 1 . 1

Give TWO features shown in FIGURE 1 that you would find in plant cells but NOT in animal cells. [2 marks]

1 _____

2 _____

0 1 . 2

What is the function of the flagellum? [1 mark]

[Turn over]

0 1 . 3

The algal cell in FIGURE 1, on page 4, can photosynthesise.

Water molecules are split during the light-dependent stage of photosynthesis.

What are the water molecules split into?

Tick (✓) ONE box. [1 mark]

Carbohydrate and carbon dioxide

Carbon and oxygen

Carbon dioxide and oxygen

Hydrogen and oxygen



0	1	.	4
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The cell in FIGURE 1 is eukaryotic.

Give TWO ways that prokaryotic cells are different from eukaryotic cells. [2 marks]

1 _____

2 _____

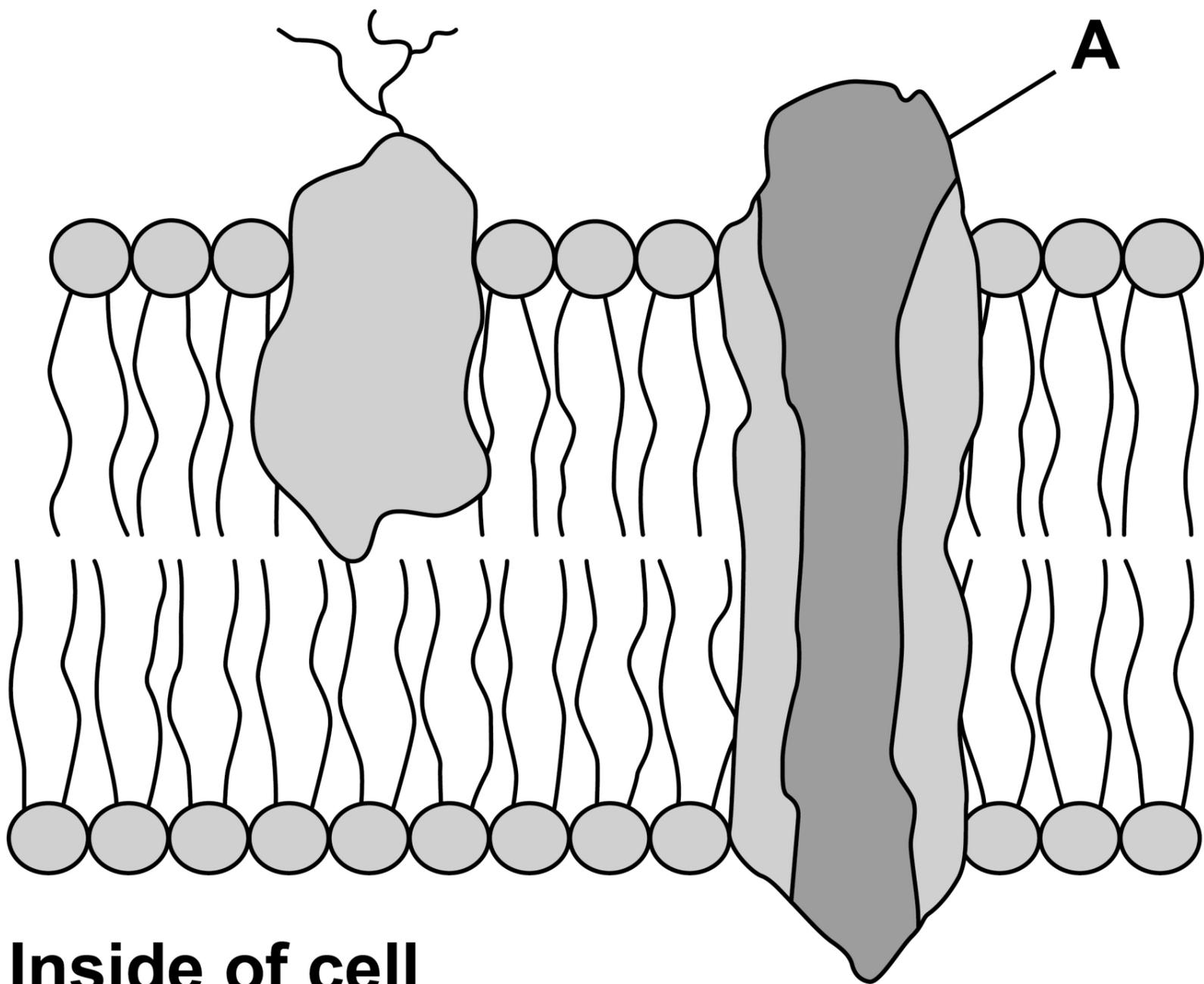
[Turn over]



FIGURE 2 shows a section of a cell membrane.

FIGURE 2

Outside of cell



Inside of cell

0	1	.	5
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**What are the functions of A in
FIGURE 2?**

Tick (✓) TWO boxes. [2 marks]

To allow active transport.

To allow facilitated diffusion.

To carry out respiration.

**To control the movement of
oxygen.**

To hold the bilayers together.

[Turn over]

8



0	2
---	---

Osmoregulation controls the water content of blood. Controlling water in the blood helps to keep the concentration of the blood within narrow limits.

Antidiuretic hormone (ADH) is a hormone used in osmoregulation.

0	2	.	1
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Which part of the brain monitors the concentration of the blood? [1 mark]



0 2 . 2**Which organ releases ADH?****Tick (✓) ONE box. [1 mark]****Adrenal gland****Liver****Pancreas****Pituitary gland****[Turn over]**

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0 2 . 3

Some brain tumours can cause very high levels of ADH secretion.

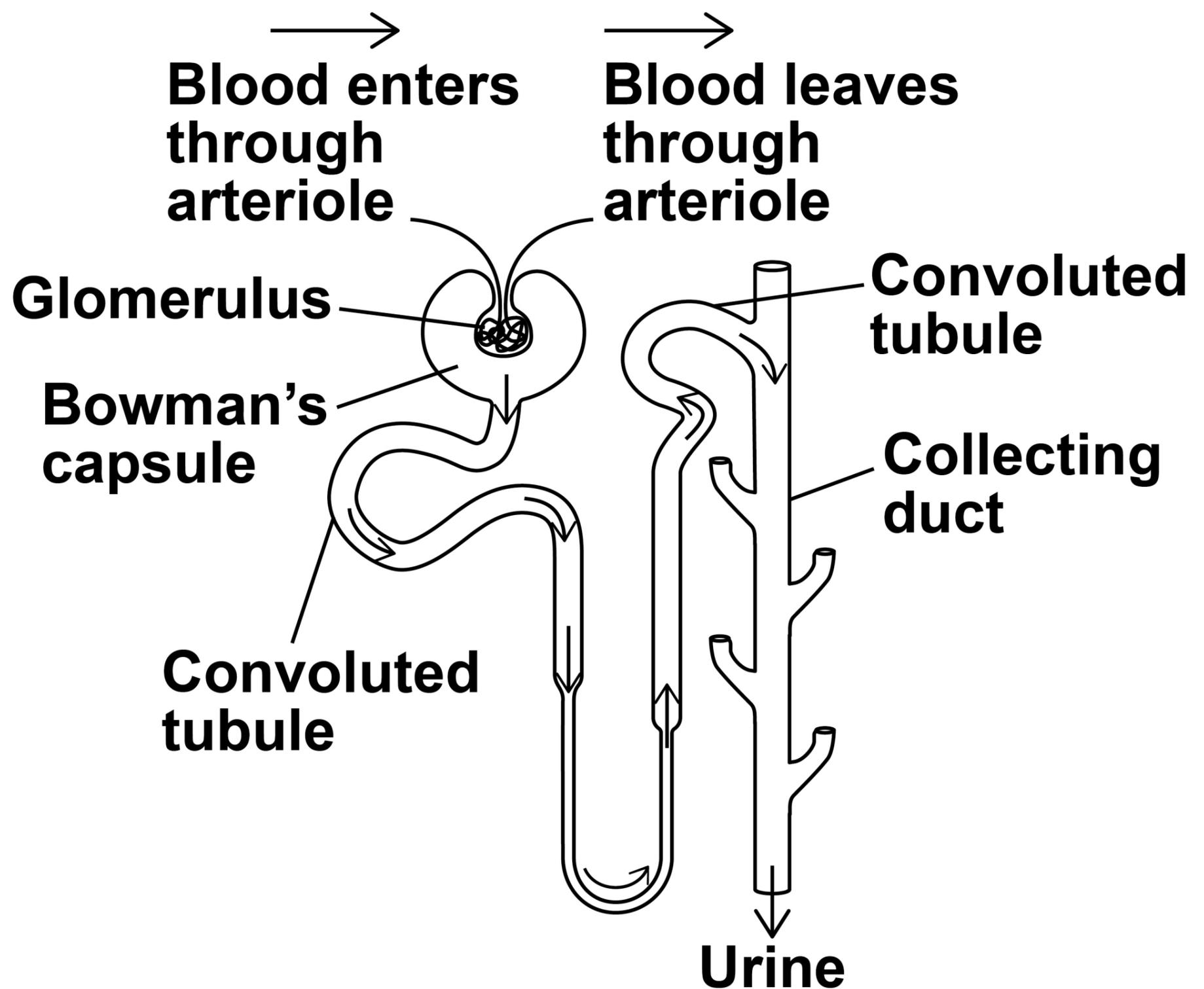
Suggest ONE symptom of very high levels of ADH secretion. [1 mark]

[Turn over]

ADH affects the functions of the kidney.

FIGURE 3 shows a kidney nephron.

FIGURE 3



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0 2 . 6

A woman goes to the doctor because she is thirsty all the time.

The doctor tests the woman for diabetes using a fasting glucose test.

Describe how to do a fasting glucose test. [2 marks]

02.7

Give TWO other tests the doctor could use to test for diabetes. [2 marks]

1

2

END OF QUESTIONS

12

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For Examiner's Use	
Question	Mark
1	
2	
TOTAL	

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