EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

BIOLOGY **6884/02**

Paper 2 Structured Questions **October/November 2024**

1 hour 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces provided.
Write your answers in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do **not** use staples, paper clips, glue or correction fluid.
Do **not** write on the bar code.

Answer **all** questions.

You may use an electronic calculator.
You may lose marks if you do not show your working or use appropriate units.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
1	
2	
3	
4	
5	
6	
7	
8	
Total	

This document consists of **12** printed pages.

1 Fig. 1.1**A** shows an animal cell and Fig. 1.1**B** shows a plant cell.

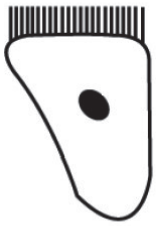

Fig. 1.1A

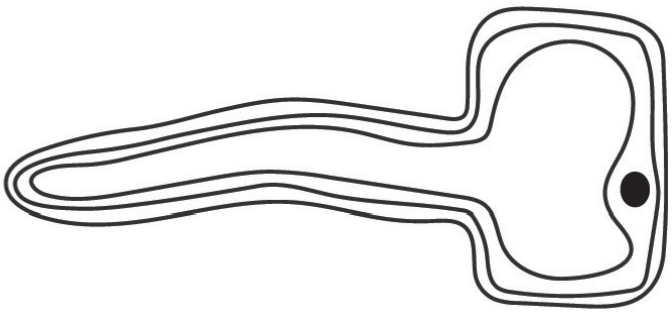

Fig. 1.1B

Fig. 1.1

(a) Name **two** visible features of a cell that are shown in both cell **A** and cell **B** in Fig.1.1.

1 .....

2 ..... [2]

(b) Describe and explain **one** adaptation of cell in Fig. 1.1**A** for its function.

.....

.....

..... [2]

(c) A student places some tissue made up of the type of cell in Fig.1.1**B** in distilled water and leaves it for 15 minutes.

Describe and explain the effect of leaving the cell in distilled water for 15 minutes.

.....

.....

.....

.....

.....

..... [4]

[Total: 8]

2 **(a)** Define the term *chemical digestion*.

.....

..... [2]

(b) Fig. 2.1 shows the human alimentary canal and its associated organs.

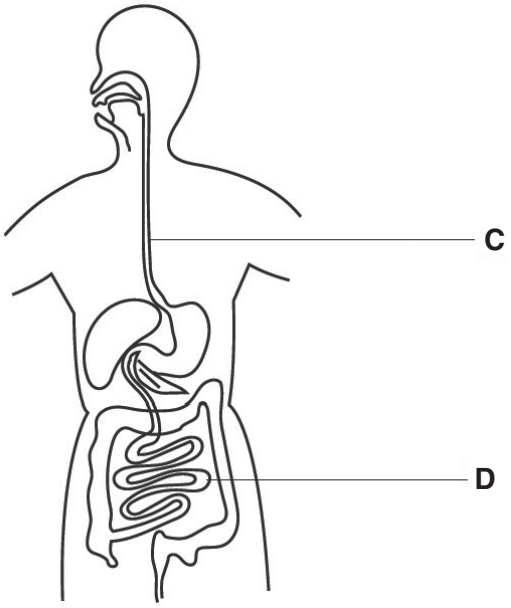

Fig. 2.1

(i) Describe how food moves through region **C**.

.....

.....

.....

..... [3]

(ii) State **one** function of the part labelled **D**.

..... [1]

(c) Faeces can be watery if a person suffers from diarrhoea.

Describe a treatment that should be given to reduce the effects of diarrhoea.

.....

..... [1]

[Turn over

(d) A person eats a meal containing a lot of carbohydrates.

Describe the role played by the pancreas and liver in controlling the concentration of glucose in the person's blood after eating this meal.

role of pancreas .....

.....

.....

role of liver .....

.....

..... [3]

(e) Diabetes can be caused by the concentration of glucose in the blood not being controlled.

Describe how diabetes can be prevented.

.....

..... [1]

[Total: 11]

3 **(a)** There are different forms of immunity from infection.

Explain why active immunity is more advantageous than passive immunity.

.....

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.....

..... [3]

(b) When the skin is cut, the formation of a blood clot at the wound can prevent infection.

Describe the process by which such a blood clot forms.

.....

.....

.....

.....

.....

..... [3]

(c) Blood clots can form in blood vessels, obstructing the flow of blood.

(i) Name the blood vessels supplying blood to the heart which may become blocked.

..... [1]

(ii) Describe how these blood vessels may become blocked.

.....

.....

.....

..... [2]

[Total: 9]

4 Table 4.1 shows the results of an investigation into the effect of increasing light intensity on the rate of photosynthesis in a green plant.

Table 4.1

light intensity / arbitrary units	rate of photosynthesis / arbitrary units
0	0
1	4
2	6
3	8
4	8
5	8

(a) State the equation for photosynthesis in symbols.

..... [2]

(b) Describe and explain the changes in the rate of photosynthesis as the light intensity increases from 0 arbitrary units.

.....

.....

.....

.....

.....

..... [4]

(c) Plants grown in greenhouses may have a higher rate of photosynthesis than similar plants grown outdoors.

Explain why this may be the case when coal is burnt in a greenhouse in cooler weather.

.....

.....

.....

..... [3]

(d) Explain why plants grow less well when the oxygen level in the soil is low.

.....

.....

.....

.....

.....

..... [4]

[Total: 13]

5 **(a)** Fig. 5.1 shows a plant growth response to light.

Fig. 5.1

(i) Draw an arrow to show the direction of light in Fig. 5.1. [1]

(ii) Describe and explain what has happened in the plant to cause the curved growth.

.....

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..... [4]

(b) The human eye has receptor cells that are sensitive to light.

Explain why a person is able to see an object but not distinguish its colour when the light is very dim.

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..... [4]

[Total: 9]

6 Fig. 6.1 shows part of the human female reproductive system.

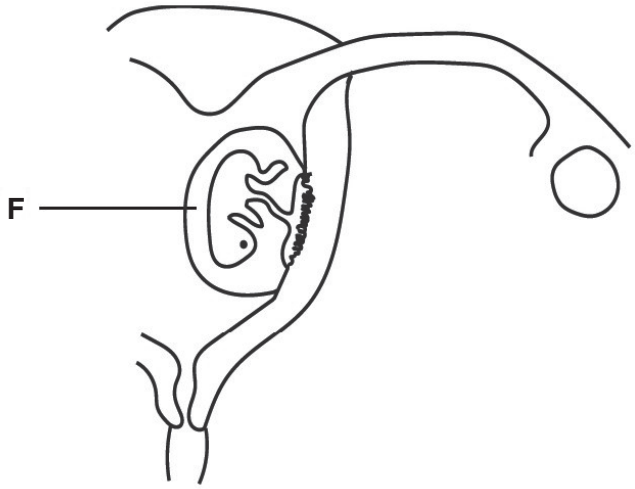

Fig. 6.1

(a) On Fig. 6.1, indicate where fertilisation occurred with a line labelled **E**. … [1]

(b) State **two** functions of the part labelled **F**.

1 .....

2 ..... [2]

(c) Describe and explain the role of named hormones secreted from the ovary in preparing the uterus for implantation.

.....

.....

.....

.....

.....

..... [4]

(d) Explain how the use of condoms helps in birth control and in preventing the spread of HIV.

birth control .....

.....

preventing the spread of HIV .....

..... [2]

[Total: 9]

7 The nucleus of a gamete contains 8 chromosomes.

(a) (i) Name the type of cell division that produces gametes.

..... [1]

(ii) State the number of chromosomes in the cells of the organ that produced this gamete.

..... [1]

(b) A couple, one with blood group A and the other with blood group B, have four children.

Each of their four children has a different blood group.

Draw a genetic diagram to show how each of their children has a different blood group.

Use the alleles I^A, I^B and I^O.

[5]

(c) One of the couple's children has Down's syndrome.

Explain the cause of Down's syndrome.

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..... [2]

(d) (i) Explain how people who have the sickle cell trait are not likely to suffer from malaria.

.....

.....

.....

..... [3]

(ii) Being resistant to malaria could be the result of natural selection.

Describe natural selection.

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..... [4]

[Total: 16]

8 Fig. 8.1 is a diagram showing the nitrogen cycle.

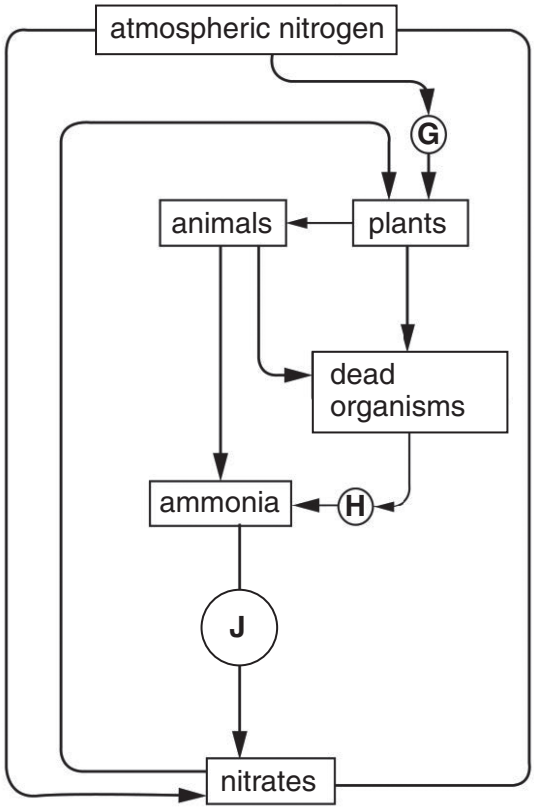

Fig. 8.1

(a) Name **two** types of organisms represented by the letter **H** in Fig. 8.1.

1 .....

2 ..... [2]

(b) State the processes in the conversion of atmospheric nitrogen to nitrates taking place in organisms **G**, **H** and **J**.

G .....

.....

H .....

.....

J .....

..... [3]

[Total: 5]