MINISTRY OF EDUCATION AND HUMAN RESOURCES
MAURITIUS EXAMINATIONS SYNDICATE

NATIONAL ASSESSMENT AT FORM III

NAME	
SCHOOL NAME	
CLASS/SECTION	

BIOLOGY
Specimen Paper

1 hour

Students answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, the name of your school and your class/section in the spaces provided above.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Any rough working should be done in the booklet itself.
Do not use correction fluid.

There are **8** questions in this paper.

Answer **all** questions.
All answers must be written in the spaces provided.

The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is **50**.

1. **Draw a circle around the letter which shows the correct answer. For each item, there is only one correct answer.**

(a) Your teacher uses an air freshener to spray the classroom and within a few seconds everyone can smell its perfume.

Which of the following processes explains how the perfume can be smelled?

A Osmosis **B** Transpiration

C Diffusion **D** Digestion

(b) Which of the following conditions cause the fastest rate of transpiration in plants?

A Dry and cold **B** Wet and warm

C Wet and cold **D** Dry and warm

(c) Which one of the following is responsible for blood clotting?

A Cell membrane **B** Plasma

C Cell vacuole **D** Platelets

(d) In human reproduction, which sequence of events is correct?

A menstruation – ovulation – fertilisation – implantation

B menstruation – ovulation – implantation – fertilisation

C fertilisation – menstruation – ovulation – implantation

D ovulation – menstruation – implantation – fertilisation

(e) Study the two single – cell organisms in **Fig. 1.1** carefully and then answer the question which follows.

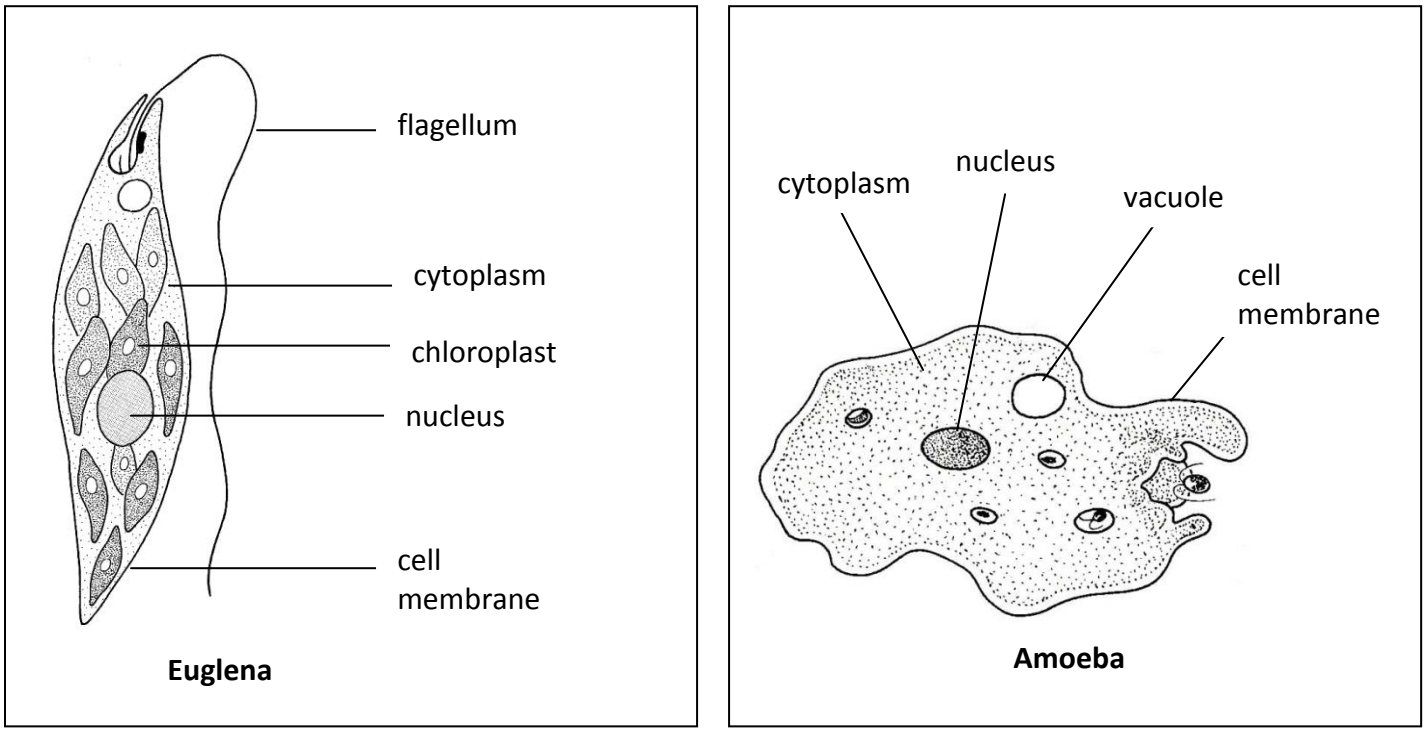

Fig. 1.1

Which of the following statements is correct?

A The amoeba is a plant cell.

B The euglena can carry out photosynthesis.

C The euglena is an animal cell.

D They are both animal cells. **[5]**

2. **a)** Complete the following equation:

Aerobic respiration:

Glucose + oxygen ⟶ carbon dioxide + …….. + energy [1]

b) Give **one** way in which a person who is motionless uses energy.

…….. [1]

c) A heavy smoker might develop the disease *emphysema.* The person will have difficulty doing physical exercises. Explain why.

……..

……. [2]

3. In an experiment, the volume of air taken in at each breath and the number of breaths per minute were measured while a young person was performing different activities. The results are shown in **table 3.1**.

Table 3.1

Activity	**Volume of air breathed in each breath/ cm^3**	**Number of breaths per minute**
Sleeping	500	20
Standing	550	22
Walking	700	28
Running	1000	40

a) What is the volume of air that is breathed in **per minute** while the person is sleeping?

.....cm^3 [2]

b) Use the figures from **Table 3.1** to describe the change that takes place when there is a shift in activity from walking to running.

……

……

…… [2]

c) Suggest why the volume of air breathed in per minute needs to increase when a person's activity changes from walking to running.

……

…… [2]

4. **Fig. 4.1** shows two different types of blood cells.

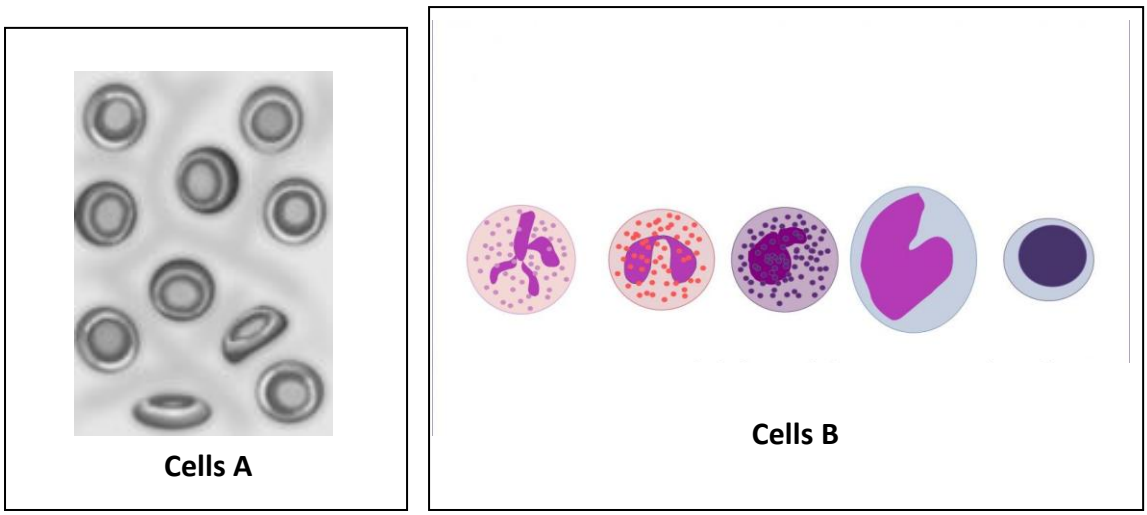

Fig. 4.1

(a) Name the cells labelled **A** and **B.**

Cells A ……

Cells B …… [2]

(b) What is the main function of cells **B**?

……

…… [1]

(c) **Fig 4.2** shows a drawing of a human heart. Label parts A, B, C and D on the diagram. [4]

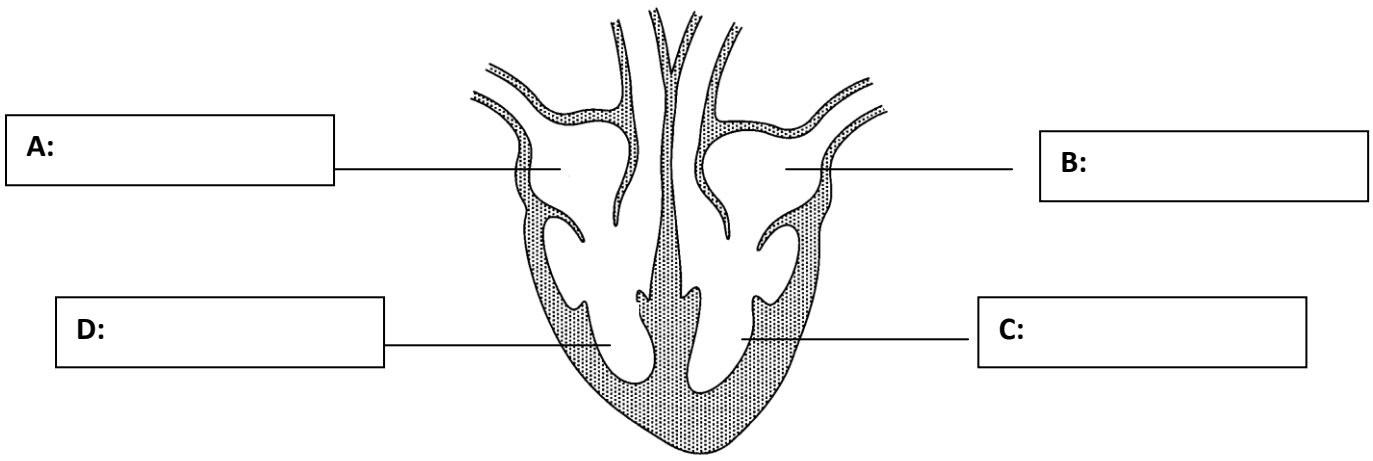

Fig. 4.2

(d) In Mauritius, there is a high prevalence of cardiovascular diseases. One cause of cardiovascular diseases is a person's diet.

i) Name the substance which leads to reduced blood flow in the artery when it is deposited on the walls of arteries,.

…… [1]

ii) What change in lifestyle could Mauritians adopt to reduce the risk of cardiovascular diseases?

……

…… [1]

5. **Fig 5.1** shows a drawing of the female reproductive system.

(a) Label parts **A to E** on **Fig. 5.1.**

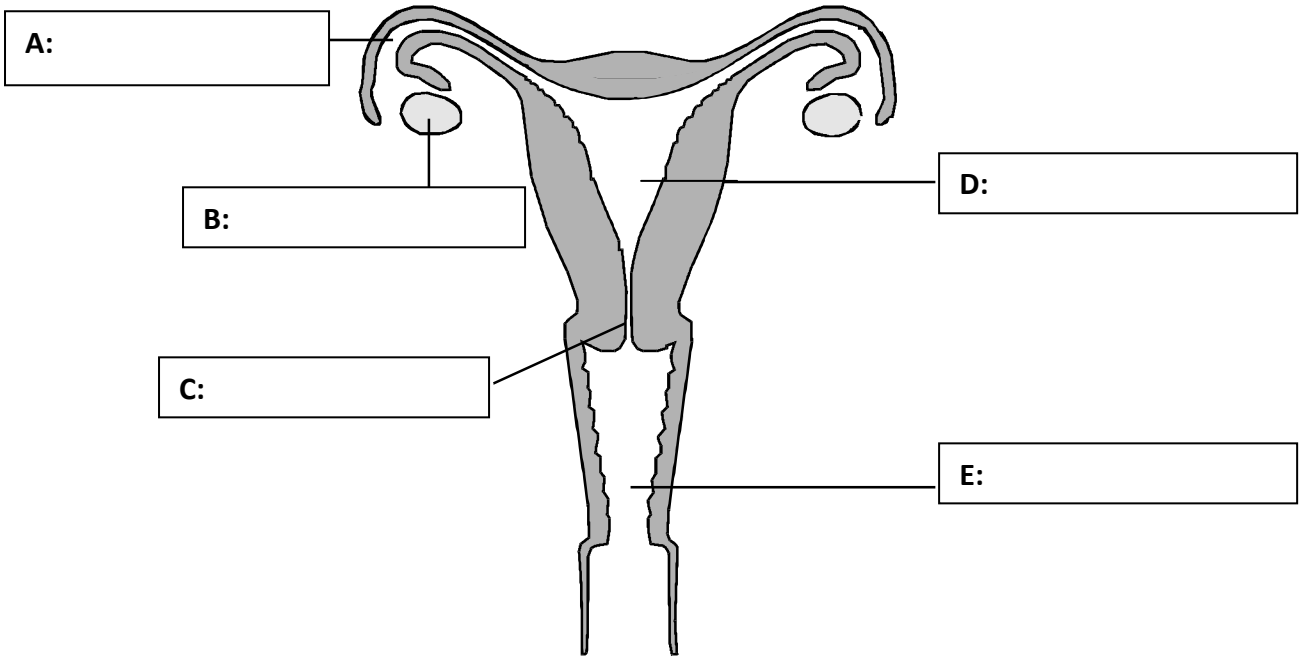

Fig. 5.1

[5]

(b) (i) What happens during the fertilization of an ova?

.....

..... [1]

(ii) In which of the labelled parts of **Fig. 5.1** does fertilisation normally take place?

..... [1]

(iii) In which of the labelled parts of **Fig. 5.1** does the foetus develop?

..... [1]

6. E. O Wilson a well-known biologist, once said that the worst thing that can happen to mankind is not energy depletion or a nuclear war. According to this biologist, the one process ongoing in the 1980s that will take millions of years to correct is the loss of biodiversity by the destruction of natural habitats. He argued that human beings will find this loss very difficult to repair.

(a) Explain why the loss of biodiversity is considered such a big catastrophe.

……

…….. [2]

(b) Name **one** threat to biodiversity in your country and explain how this threat can be minimised.

……

……

…….. [3]

7. **(a)** **Fig. 7.1** shows the cross section of a stem. Label the xylem and phloem vessels.

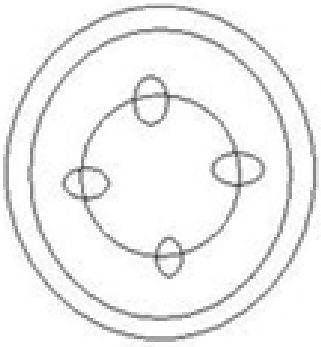

Fig. 7.1 [2]

(b) **Table 7.1** gives different factors that can affect the rate of transpiration in a plant. Complete **table 7.1** to show the effect of each factor on the rate of transpiration**.** One example has been done for you.

Table 7.1

Factors	**Rate of transpiration:**	
	Increases	**Decreases**
Low quantities of water available		✓
High level of humidity in the air		
Strong winds		
Low temperature		

[3]

8. **(a)** (i) Human Immunodeficiency Virus (HIV) is a communicable disease. What is meant by the term 'communicable disease'?

.....

..... [1]

(ii) Give **one** way in which this virus can be transmitted from one infected person to another person.

.....

..... [1]

(iii) Suggest **one** way to prevent a person from being infected by HIV through the contamination method you gave in part **(a) (ii).**

.....

..... [1]

(b) Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected mosquitoes. **Table 8.1** gives the number of cases of malaria in a particular country from 1981 to 1985.

Table 8.1

Years	Number of cases of malaria in the local population
1981	563
1982	620
1983	266
1984	102
1985	16

(i) Suggest **one** cause for the high prevalence of malaria in 1981 and 1982.

.....

..... [1]

(ii) What **two** measures might have been taken to reduce the number of cases from 620 in 1982 to 16 in 1985.

(1) .....

..... [1]

(2) .....

..... [1]

(iii) The number of people travelling overseas increased significantly since 1985 in this country. At the same time the number of malaria cases also increased, such that since 1985, 20-30 cases were recorded yearly.

1. In 2008, 27 cases were recorded. Suggest **one** possible link between the increased air travel and the number of cases of malaria recorded in 2008.

……

…… [1]

2. What measures couldbe taken to minimise the impact of air travel on the spread of malaria?

……

…… [1]