



Index Number: .....

# NATIONAL CERTIFICATE OF EDUCATION

2021-2022

## BIOLOGY (N530)

TIME: 45 MINUTES

Candidates answer on the Question Paper.

Additional Material: Ruler, Calculator

### READ THESE INSTRUCTIONS FIRST

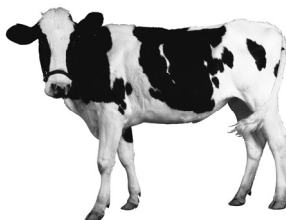
1. Write your index number in the space provided above.
2. Write in dark blue or black ink. Do not use correction fluid.
3. You may use a soft pencil for any diagram, graph or rough working.
4. Diagrams are not drawn to scale unless otherwise specified.
5. Any rough working should be done in this booklet.
6. Answer **ALL** questions.
7. This document consists of **5** questions printed on **11** pages, numbered **1** to **11**.
8. The number of marks is given at the end of each question or part question.
9. The total number of marks for this paper is **50**.

For Examiners' use							
Question No.	1	2	3	4	5	Total	Signature
Examiner							
Team Leader							
Quality Controller							
CE/ACE							



**Question 1 (10 marks)****Circle the correct answer. Each item carries one mark.**

1. Where on the human body can a pulse be felt?  
**A** Knee  
**B** Mouth  
**C** Nose  
**D** Wrist
  
2. Which one of the following is a common cause of cardiovascular diseases?  
**A** Being underweight  
**B** Smoking cigarettes regularly  
**C** Having a diet which is low in salt  
**D** Doing regular exercises
  
3. Which organism can be counted using a quadrat of 1m x 1m?

**A** Butterflies**B** Cows**C** Snails**D** Sparrows

4. Which one of the following is a natural calamity which affects biodiversity?



**A** Cyclones



**B** Deforestation



**C** Water pollution caused by oil spills



**D** Air pollution caused by burning fuels

5. Which one of the following is an invasive alien species found in Mauritius?



**A** Bois de natte



**B** Bottle palm tree



**C** Goyave de Chine




**D** Trochetia Boutoniana

6. Which one of the following is a communicable disease?
- A** Diabetes
  - B** Gonorrhea
  - C** Heart attack
  - D** Stroke
7. Which part of the male reproductive system produces sperms?
- A** Penis
  - B** Scrotum
  - C** Testis
  - D** Urethra
8. Which one of the following describes how yeast cells reproduce?
- A** By laying eggs
  - B** By forming seeds
  - C** By splitting into two new cells
  - D** By forming small buds

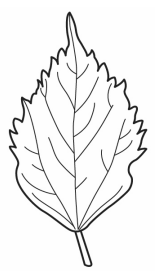
9. Which one of the following green leaves has the maximum exposure to sunlight?

**A**



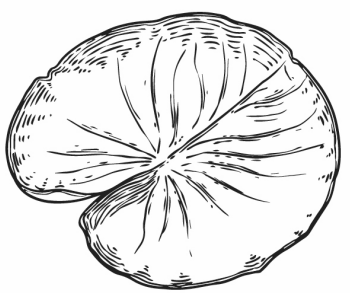
Surface area: 5 cm<sup>2</sup>

**B**




Surface area: 60 cm<sup>2</sup>

**C**



Surface area: 750 cm<sup>2</sup>

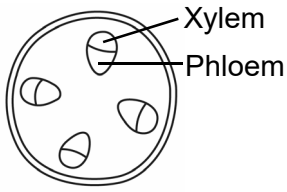
**D**



Surface area: 90 cm<sup>2</sup>

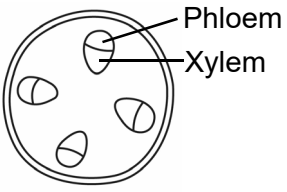
10. Which diagram correctly shows the phloem and xylem in a cross-section of a root of a plant?

**A**



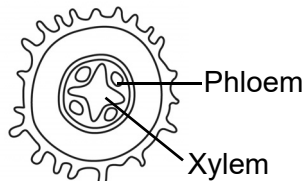
Xylem  
Phloem

**B**



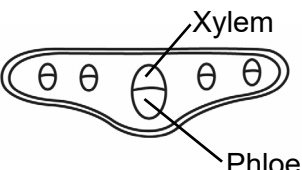
Phloem  
Xylem

**C**



Phloem  
Xylem

**D**



Xylem  
Phloem

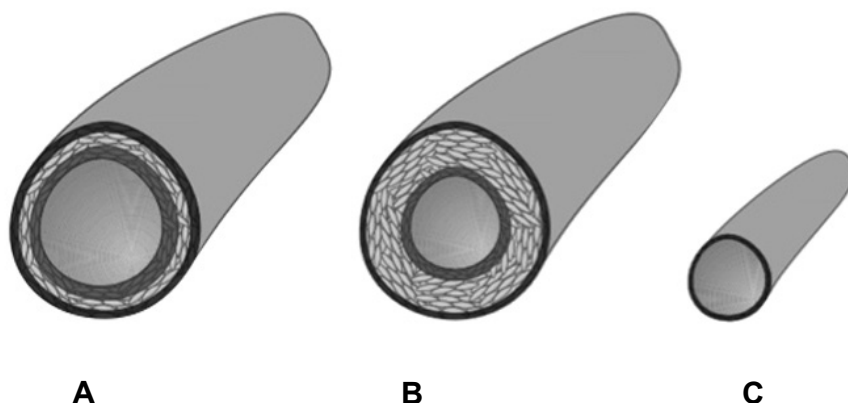
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## Question 2 (9 marks)

- (a) **Fig. 2.1** shows the three types of blood vessels in the blood circulatory system.

In the spaces provided below, write the names of blood vessels **A**, **B** and **C**.

[3]



**Fig. 2.1:** Three types of blood vessels

**A:** ..... **B:** ..... **C:** .....

- (b) Match each blood component to its corresponding function.

Blood component
Red blood cell
White blood cell
Blood platelet
Blood plasma

Function
It is involved in blood clotting.
It transports substances around the body.
It pumps blood around the body.
It carries oxygen throughout the body.
It protects the body against diseases.

[4]

- (c) What is the colour of blood plasma?

\_\_\_\_\_

[1]

- (d) What percentage of blood consists of blood cells and platelets?

\_\_\_\_\_ %

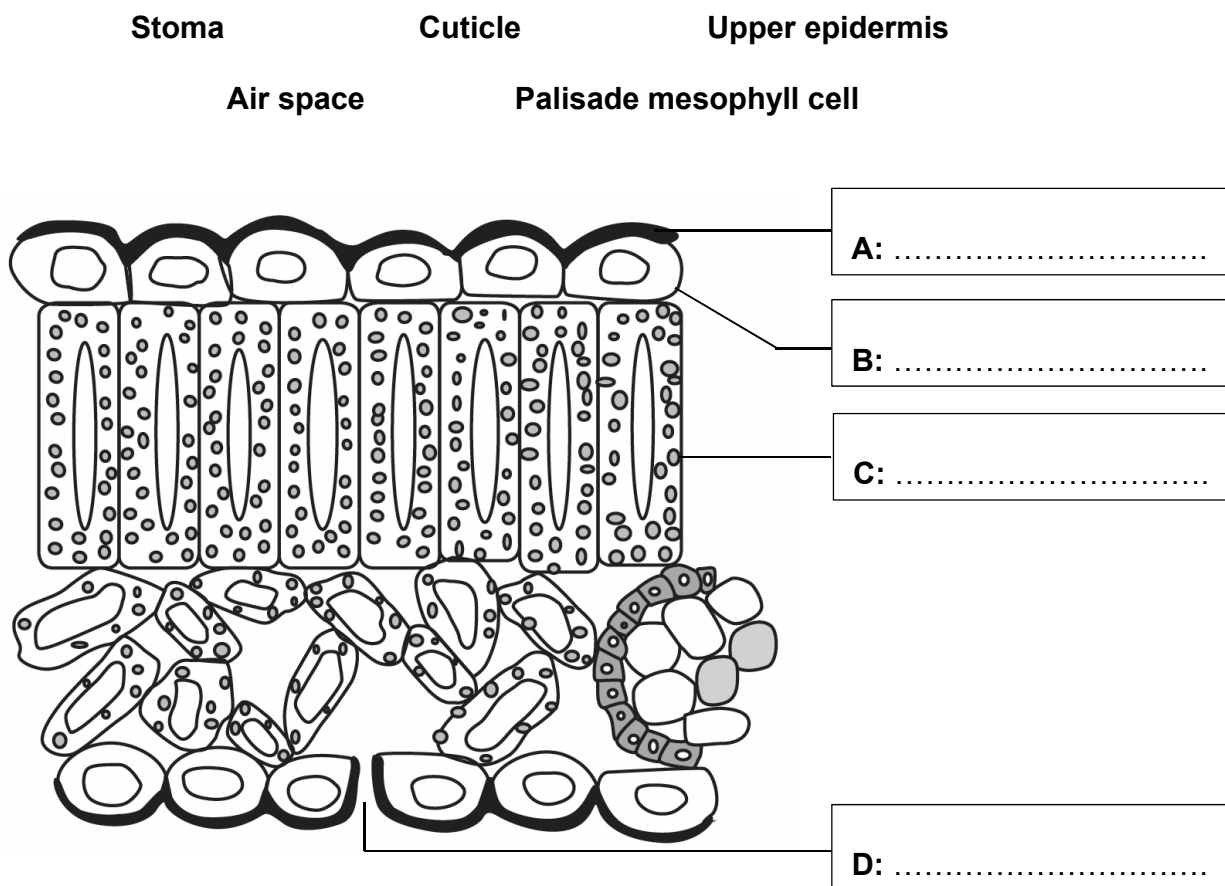
[1]

E
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### Question 3 (9 marks)

- (a) **Fig. 3.1** shows the cross-section through the leaf of a plant.

Using the words given below, label parts **A**, **B**, **C** and **D** on the diagram.



**Fig. 3.1:** Cross-section through the leaf of a plant

[4]

- (b) Before the start of an experiment to investigate a factor necessary for photosynthesis, the plant to be used is destarched.

Why is it important to destarch the plant before the start of the experiment?

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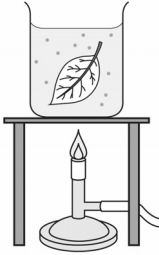

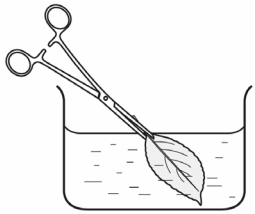
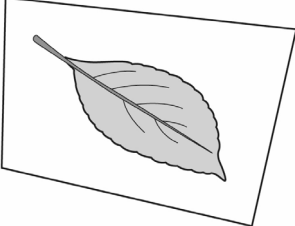
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[1]



- (c) Complete **Table 3.1** by giving the **reason** for each of the steps carried out when testing a leaf for the presence of starch.

**Table 3.1:** Steps to test a leaf for the presence of starch

	Step	Reason
(i)	Put the leaf in boiling water. 	..... .....
(ii)	Place the leaf in hot alcohol. 	..... .....
(iii)	Wash the leaf in warm water. 	..... .....
(iv)	Cover the leaf with a few drops of iodine solution on a white tile. 	..... .....

[4]

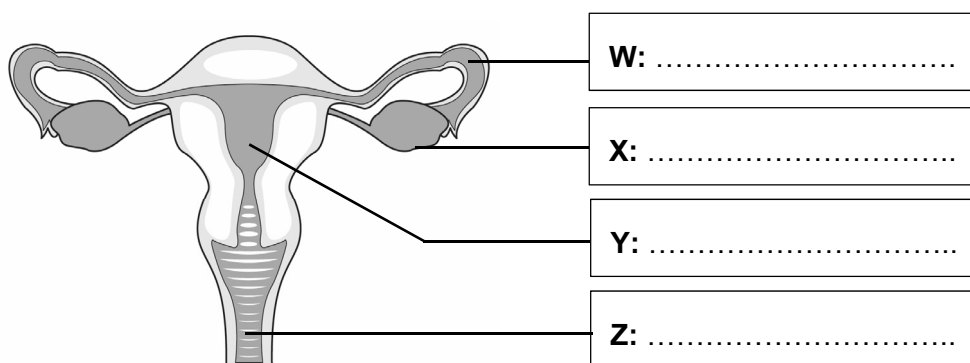
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**Question 4 (12 marks)**

**Fig. 4.1** is a front view of the female reproductive system.

- (a) Label parts **W**, **X**, **Y** and **Z** on **Fig. 4.1**.

[4]



**Fig. 4.1:** Front view of the female reproductive system

- (b) In which part of the female reproductive system does fertilisation take place?

\_\_\_\_\_

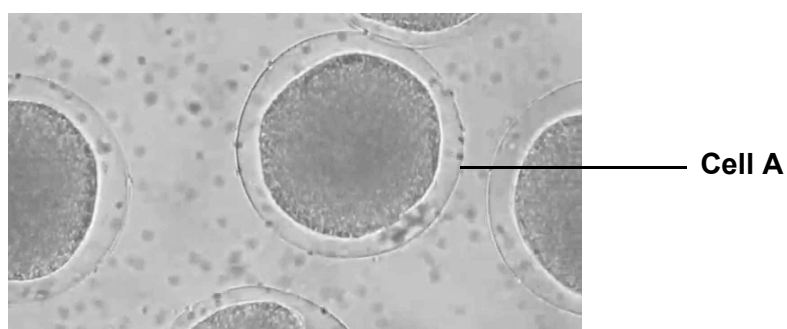
[1]

- (c) What is a fertilised egg called?

\_\_\_\_\_

[1]

- (d) **Fig. 4.2** shows the photomicrograph of **Cell A**, an egg (ovum) in the female reproductive system.



**Fig. 4.2:** Photomicrograph of an egg (ovum)

In the space below, draw a large diagram of **Cell A**.

[2]

- (e) **Table 4.1** shows the number of new HIV cases in Mauritius from 2010 to 2020.

**Table 4.1:** Number of new HIV cases from 2010 to 2020

Year	Number of new cases of HIV
2010	580
2012	327
2014	333
2016	329
2018	406
2020	164

- (i) What is the number of new HIV cases in 2016?

\_\_\_\_\_

[1]

- (ii) How is HIV transmitted?

\_\_\_\_\_

[1]

- (iii) Suggest two reasons why the number of new cases of HIV has dropped from 580 in 2010 to 164 in 2020.

1. \_\_\_\_\_

2. \_\_\_\_\_

[2]

E
TL
QC
CE

### Question 5 (10 marks)

(a) Name an animal which is overexploited for each of the following reasons:

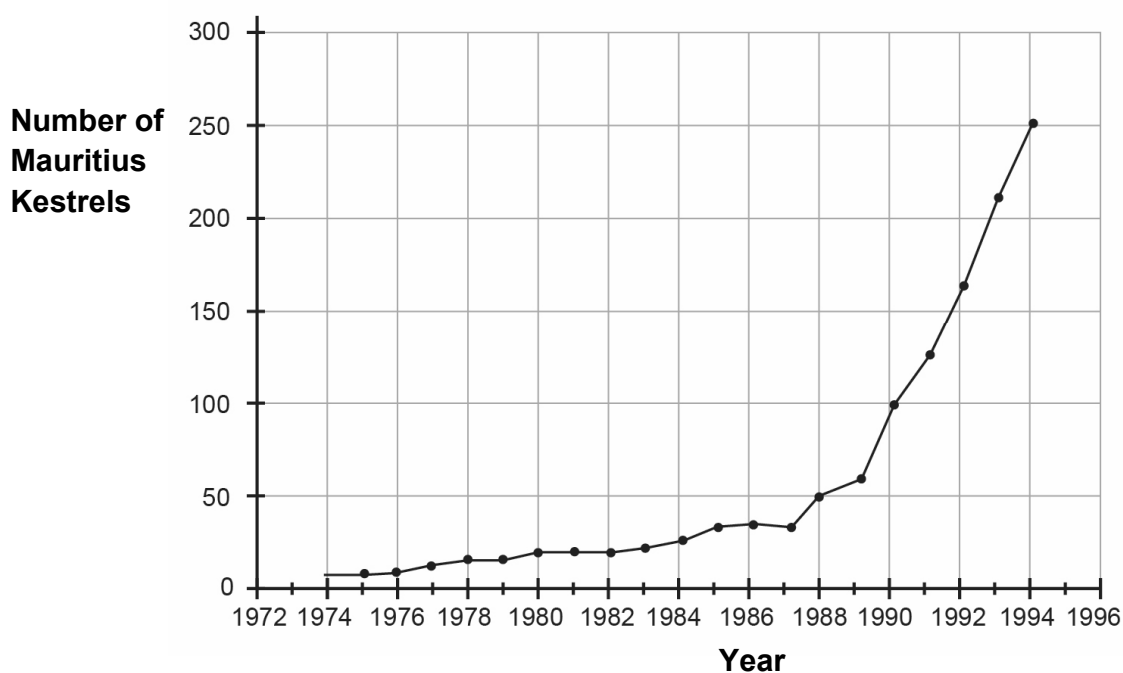
(i) Hunted for their tusks which are used to produce ivory: \_\_\_\_\_

(ii) Hunted for their fur: \_\_\_\_\_

[2]

(b) In 1973, only 2% of the population of the Mauritius Kestrel remained in the wild.

The graph shown in **Fig. 5.1** shows the population of the Mauritius Kestrel from 1974 to 1994.



**Fig. 5.1:** Graph of the population of the Mauritius Kestrel from 1974 to 1994.

(i) What is the approximate number of Mauritius Kestrels in

1. 1988? \_\_\_\_\_

2. 1994? \_\_\_\_\_

[2]

(ii) Describe the trend in the population of the Mauritius Kestrel from:

1974 to 1987: \_\_\_\_\_

\_\_\_\_\_

1987 to 1994: \_\_\_\_\_

\_\_\_\_\_

[2]

- (c) Suggest two human activities which might have led to the decrease in the population of the Mauritius Kestrel in the past.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

[2]

- (d) Between 1981 and 1986, 28 fertilised eggs and 2 young Mauritius Kestrels were removed from the wild as a conservation measure to increase their population.

What is this conservation measure called?

\_\_\_\_\_

[1]

- (e) What may happen to endangered organisms if conservation measures are not taken?

\_\_\_\_\_

\_\_\_\_\_

[1]

E
TL
QC
CE





