

**MINISTRY OF EDUCATION AND HIGHER EDUCATION**

**FORM FOUR EXAMS, 2020**

# **BIOLOGY**



**P/LAND NATIONAL EXAMINATION BOARD**

MINISTRY OF EDUCATION AND HIGHER EDUCATION  
PUNTLAND NATIONAL EXAMINATIONS BOARD

Code Number

FORM FOUR EXAMINATION 2020  
TIME: 1 HOUR AND 30 MINUTES

# BIOLOGY

## Instructions to candidates

- Answer all the questions
- This paper consists of 7 pages, count it and if any is missing inform your invigilator
- Do not write your **name and roll number** on the exam paper
- Make sure that **student's profile** is attached to the exam paper, if not, inform you invigilator.
- No extra paper is allowed.
- If you make a mistake, **cross out the incorrect** answer and **write your correct answer**.

This exam paper consists of following sections

Parts	Marks
Section A: Multiple Choice	30 marks
Section B: Structured Questions	70 marks
<b>Total: 100 Marks</b>	

For the markers only

PARTS	MARKS
Part one	
Part two	
TOTAL	%



**SOM EXAMS**

**SECTION A: MULTIPLE CHOICE QUESTIONS**

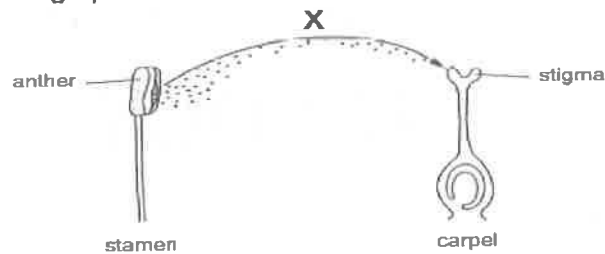
**(30 MARKS)**

Circle the correct answer

1. the diagram below shows a process of a plant reproduction

Which process is representing by arrow X?

- A. Fertilization
- B. Seed dispersal
- C. Pollination
- D. Germination



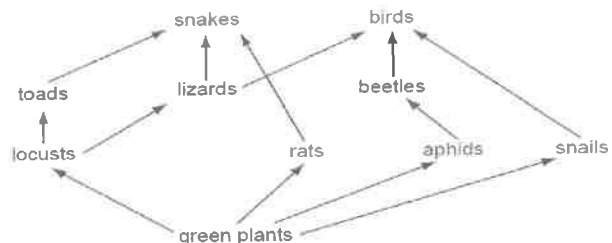
2. The disease which is common infection of the respiratory system is

- A. Tuberculosis
- B. Malaria
- C. Cholera
- D. Syphilis

3. The diagram shows a food web in woodland.

In this food web the locusts are

- A. Carnivores.
- B. Decomposers.
- C. Herbivores.
- D. Producers.



4. For an enzyme to work properly in cellular reactions, the optimum temperature in mammals should be

- A. 37c<sup>0</sup>–40c<sup>0</sup>
- B. 10c<sup>0</sup>–20c<sup>0</sup>
- C. 0c<sup>0</sup>–10c<sup>0</sup>
- D. 80c<sup>0</sup>–100c<sup>0</sup>

5. The diagram below shows the structure of sperm cell which labeled part does this sperm cell use for movement or swimming.



6. The diagram below shows the structure of the DNA nucleotide

The structure labeled X is



- A. Base
- B. Phosphate group
- C. Pentose sugar
- D. Polymer

7. Which of the following organs produce wastage substance?

- A) Heart
- B) Stomach
- C) Skin
- D) Brain

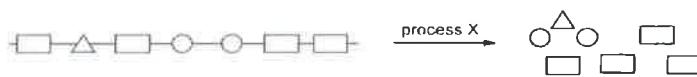
8. Which one is NOT part of kidney structure?

- A. Bladder
- B. Kidney
- C. Intestine
- D. Urethra

9. The Percentage of nitrogen in air is.

- A. 56%
- B. 78%
- C. 21%
- D. 12%

10. The diagram below shows a large food molecule changing in to simpler food molecule



The process labeled X in the above diagram is.

- A. Digestion
- B. Absorption
- C. Secretion
- D. Chewing

**SECTION B: STRUCTURAL QUESTIONS**

**(70 MARKS)**

Answer all the following questions in the space provided.

**QUESTION ONE**

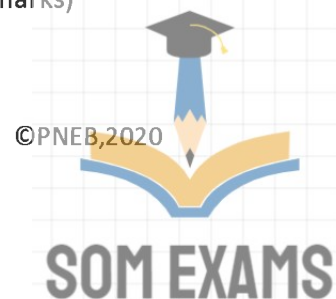
**(6 MARKS)**

Study the process below then answer the questions on the space provided



a. Name the process of the above equation

.....  
 .....(2marks)



b. Name the parts labeled X , Z and Y

X..... (1mark)

Z.....(1mark)

Y..... (1mark)

c. Name the organism that can carry out the process above

.....  
 .....(1mark)

**QUESTION TWO**

**(10 marks)**

In the diagram below, some of the chromosome numbers in the different cells have been given to you.

Identical twins occur when an embryo splits into two.

a. Write down the number of chromosomes in A

..... (1mark)

b. Name this type of reproduction

.....(1mark)

c. In human, the sex cells (gametes) for male (sperm) and female (egg) are produced from sex organs.

Name the sex organs of

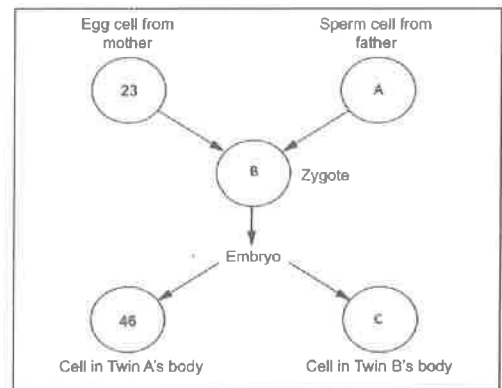
i. **Male** ..... (1mark)

ii. **Female**..... (1mark)

d. The sex organs can also produce hormones as well as gametes

State one hormone that can be produced from male sex organ.

.....  
 ..... (2marks)



e. Differentiate homozygous and heterozygous

i. Homozygous.....

..... (2marks)

ii. Heterozygous.....

..... (2marks)

**QUESTION THREE**

**(13marks)**

The diagram below shows an animal cell as seen under electron microscope.

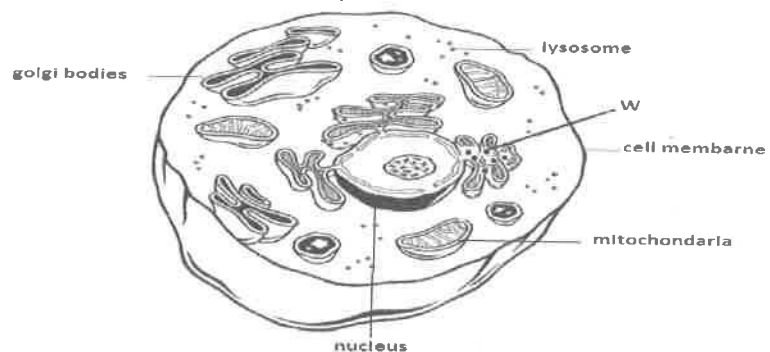
a. i. Name the organelle labeled in W.

.....(1mark)

i. State the function of Golgi bodies

.....  
 .....

..... (2marks)



b. Below is a list of the parts labeled the cell above, each part of the cell is specialized to carry out a particular function

Complete the table below by matching the parts of the cell in **column A** and its corrective function in **column B** by using letters

**(10marks)**

COLUMN A (parts of the cell)	Letters	COLUMN A (functions)
a) mitochondria		1. Controls the entry substance in and out of the cell
b) cell membrane		2. control center of the cell
c) chloroplast		3. where photosynthesis takes place
d) lysosome		4. where aerobic respiration take place
e) Nucleus		5. Contain digestive enzymes

**QUESTION FOUR**

**(10 marks)**

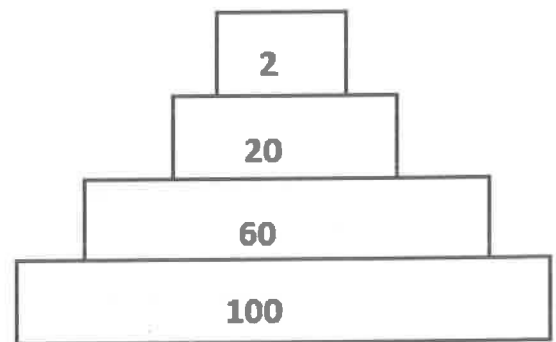
a. Complete the table by matching the parts lungs and their functions

Part of the of the gas exchange	Letters	Function
1. Trachea		a. Structure makes sound
2. Alveolus		b. Bone that protects the lungs
3. Diaphragm		c. Site of gas exchange
4. Ribs		d. It contracts or domes down during inhalation
5. Larynx or voice box		e. Air ways that allows passage of air in to both lungs

**QUESTION FIVE**

**(5marks)**

The pyramid below represents number of organisms in an ecosystem



a. Write down the number of producers shown.

.....(1mark)

b. Calculate the difference in number between the secondary and primary consumers

.....(2marks)

c. Look this food chain.

**oak leaves → herivorous insect → carnivorous insect → bird**

In the above food chain

i. Write down the organism that occupies the **third** trophic level

.....  
 .....(2marks)



**QUESTION SIX**

**(4 marks)**

The diagram below shows some animals

a) Look the diagram of the left.

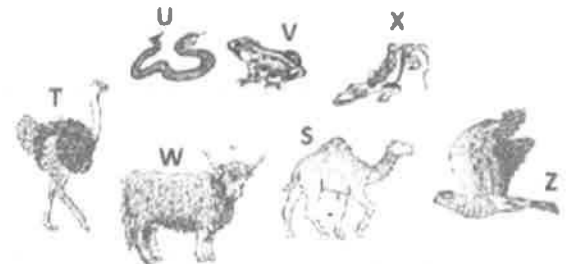
Choose two are reptiles and two Mammals.

i. Reptiles

.....  
 .....(2marks)

ii. Mammals

.....(2mark)



**QUESTION SEVEN**

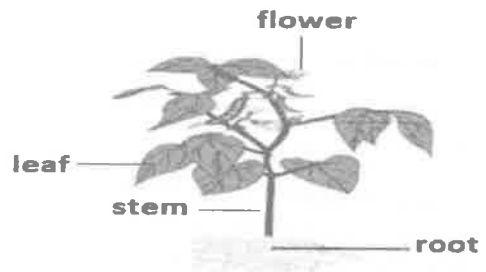
**(9 marks)**

The diagram below shows well labeled plant parts

Plants have different types

a. Name this type of plant

.....(1mark)



b. State the functions of the following parts

1. Flower

.....  
 .....(2marks)

2. Leaf

.....  
 .....(2marks)

3. Stem

.....  
 .....(2marks)

4. Root

.....  
 .....(2marks)



**QUESTION TEN**

**(13 marks)**

The diagram shows mosquito that can be carried and transmitted for the disease malaria.

A mosquito cannot cause the disease but it's a vector.



**I. Describe what is meant a vector**

.....  
 .....  
 .....(2marks)

**a. Name the germs that cause the malaria?**

.....(2 marks)

**b. Write at least three ways that malaria can be prevented from spreading.**

.....  
 .....(3 marks)

The table below shows different types of micro-organisms that can cause diseases **(6marks)**

Pathogen	Type of micro-organism	Disease caused
Human immunodeficiency virus (HIV)	<b>a.</b> .....	<b>b.</b> .....
Mycobacterium	<b>c.</b> .....	Tuberculosis
Vibrio-cholera	<b>d.</b> .....	<b>e.</b> .....
<b>f.</b> .....	Virus	Polio

**END**

