

MINISTRY OF EDUCATION AND HIGHER EDUCATION

GRADE 12 EXAMS, 2024

BIOLOGY



P/LAND NATIONAL EXAMINATION BOARD



**MINISTRY OF EDUCATION AND HIGHER EDUCATION
PUNTLAND NATIONAL EXAMINATIONS BOARD**

Name of Student			
Roll Number			
Name of School			
Region:		District:	

**FORM FOUR EXAMINATION, 2024
TIME: 2 HOURS PLUS 10 MINUTES FOR READING**

BIOLOGY

Instructions to candidates

- Answer all the Questions
- This paper consists of 11 pages, count it and if any is missing inform your invigilator
- Write your name and roll number on the exam paper
- 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 Parts

Parts	Marks
Part one: Multiple questions	10 marks
Part two: Structured questions	90 marks
Total:	100 Marks

For the markers only

PARTS	MARKS
Part one:	
Part two:	
Total:	



Use this page for rough work. It will NOT be marked.

A series of horizontal dotted lines spanning the width of the page, intended for rough work.

PART ONE: MULTIPLE CHOICE QUESTIONS

(10MARKS)

- Which of the following bones is NOT part of the axial skeleton?
 - Femur
 - Skull
 - Rib cage
 - Vertebrae
- The information shows what happens during some of the stages of sexual reproduction in human.
 sperm + egg → fertilized egg → male embryo

Which sex chromosomes are present in the egg, sperm and fertilized egg shown?

	egg	sperm	fertilised egg
A	X	X	XX
B	X	Y	XY
C	Y	X	XY
D	Y	Y	YY

- How does insulin regulate blood sugar levels in the body?
 - By stimulating the liver to release glucose
 - By promoting the uptake of glucose by cells
 - By inhibiting the production of glucagon
 - By converting glucose into glycogen
- The function of C and F on this male and female reproductive system is

	C	F
A	Produces sperm	Fertilization takes place
B	Stores sperm	Produces egg
C	Carries sperm	Fertilization takes place
D	Stores sperm	Fertilization takes place



- If a person got damage to the cerebellum, what function might be affected?
 - Vision
 - Balance
 - Memory
 - Speech production
- Which of the following symptoms is a characteristic of cholera infection?
 - High fever and skin rash
 - Persistent cough and chest pain
 - Severe watery diarrhea and vomiting
 - Muscle stiffness and paralysis

7. In this food web the frog, fox and squirrel are



	Frog	Fox	Squirrel
A	Tertiary consumer	Secondary consumer	Primary consumer
B	Secondary consumer	Secondary consumer	Tertiary consumer
C	Primary consumer	Tertiary consumer	Secondary consumer
D	Secondary consumer	Secondary consumer	Primary consumer

8. This is a type of neuron that transmits a nerve impulse from.

- A. Skin to A only
- B. A to B
- C. Skin to B
- D. B to skin



9. A man with blood type AB ($I^A I^B$) marries a woman with blood type O (ii). What are the possible blood types of their offspring?

- A. A, and B only
- B. A, B, and AB
- C. A, B, AB, and O
- D. O, and B, only

10. If you wanted to move your forearm to scratch your back, which type of joint would be primarily involved?

- A. Ball and socket joint
- B. Hinge joint
- C. Pivot joint
- D. Gliding joint



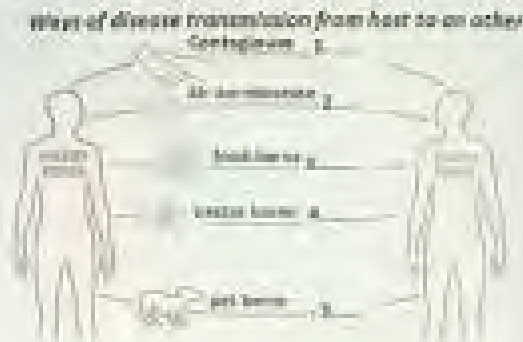
PART TWO: STRUCTURED QUESTIONS

[90 MARKS]

Answer all the following questions

QUESTION ONE: DISEASE AND IMMUNITY (10 MARKS)

Look the diagram about ways of transmission of diseases.



A. Give one example of a disease that can be transmitted in each of the ways shown above.

1. (1mark)
2. (1mark)
3. (1mark)
4. (1mark)
5. (1mark)

B. Cholera is a food-borne disease.
Write two ways of its prevention

1. (1mark)
2. (1mark)

C. There is another way of disease transmission which can be through sexual contact (STDs).

1. Name any two disease that can be transmitted in this way

1. (1mark)
2. (1mark)

D. Suppose a person got sick and recovered after days

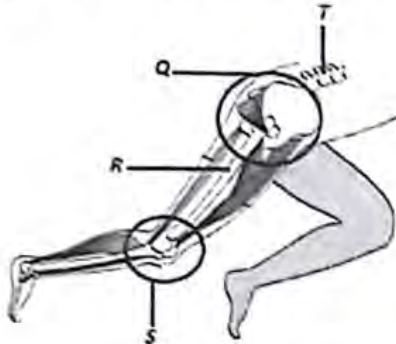
1. Which type of immunity does the person receives

-
..... (1mark)

QUESTION TWO: SUPPORT AND MOVEMENT

(8MARKS)

The diagram shows types of joints and bones.



A. Name the parts labeled R, and T.

R.(1mark)

T.(1mark)

B. Name the types of joints found in Q and S

Q.(1mark)

S.(1mark)

C. Give any joint other than Q and S you can find in your body

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

D. Compare and contrast the functions of Q and S

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

QUESTION THREE: BIOTECHNOLOGY

(6MARKS)

This diagram is our typical Angelo(Canjelo)



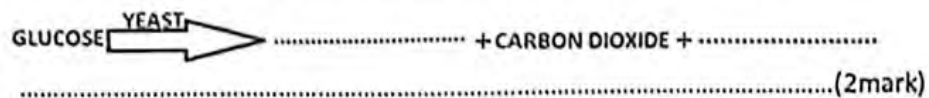
A. What are the ingredients by which Canjelo is made?

.....
(3marks)

B. Canjelo is kept in warm place before is baked. Give a reason.

.....
(1mark)

C. This is a word equation of fermentation process. Complete the equation.



QUESTION FOUR: ECOLOGY

(16 MARKS)

A. This is a food web in a certain ecosystem.



i. Name the producer of the food web

.....(1mark)

ii. Identify the organism with the highest number of predators

.....(1mark)



III. From the food web, construct two food chains which end with hawk

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

B. Name the trophic level occupied by each of the following:

i. Mouse

.....(1 mark)

ii. Owl

.....(1 mark)

iii. Grass

.....(1mark)

iv. Rabbit

.....(1mark)

C. Identify the organism that has the least energy in this food web

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

D. What would happen to the number of grasshoppers if hawk is killed by a disease?

.....
.....(1marks)

E. Explain the following terms

i. Producers

.....
.....(2mark)

ii. Herbivores

.....
.....(2mark)

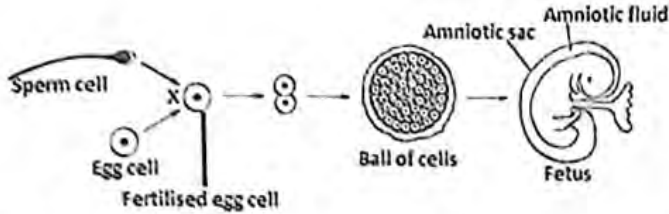
iii. Secondary consumers

.....
.....(2mark)

QUESTION FIVE: REPRODUCTION IN HUMANS

(11 MARKS)

The diagram shows stages in the formation of a humans fetus



- A. Name the process of cell division that sperm and egg cells are produced?

(1mark)
- B. State the number of chromosomes found in each of these.
- I. Sperm cell
(1mark)
- II. Egg cell
(1mark)
- III. Fertilized egg cell
(1mark)
- Fetus
(1mark)
- C. State the term used to describe the fertilized egg cell.
(1mark)
- D. Explain what determines "a fertilized egg cell "to develop into a boy rather than a girl.

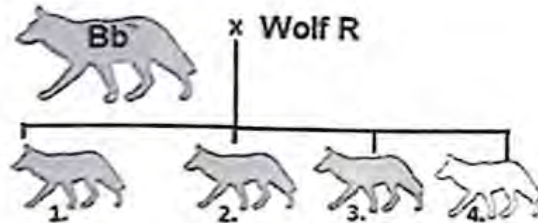
(2marks)
- E. Define these terms
- i. Sperm
(1mark)
- ii. Egg
(1mark)
- iii. Gametes
(1mark)



QUESTION SIX: GENETICS

(18marks)

The diagram shows the offspring of a cross between two wolves.



Brown colour is caused by dominant allele **B** and white colour by recessive allele **b**.

A. Write down the phenotype and genotype of wolf R

i. Phenotype

.....(1mark)

ii. Genotype

.....(1mark)

iii. Write down all the genotypes of the offspring 1 to 4.

1.....

2.....

3.....

4.....(4marks)

iv. What is the genotypic ratio of the offsprings

.....

.....(1mark)

B. If the offspring 3 and 4 are crossed again.

i. Write down all possible genotypes of the first offsprings

.....

.....

.....(4marks)

ii. write down their phenotypic ratio

.....

.....(1mark)

C. complete the following sentences using genetic terms from the box

(6marks)

Phenotype, complete dominance, Homozygous, heterozygous, chromosome and gene

1. is the out-word appearance of an organism

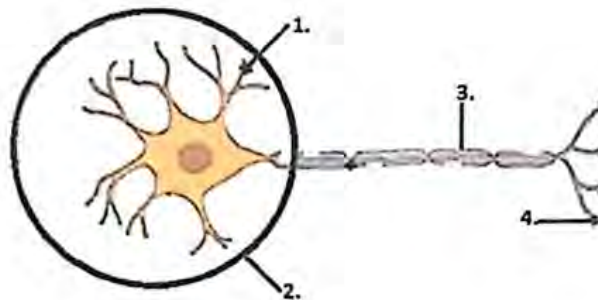
2. Is thread-like structure composed of DNA and genes found in the nucleus

3. is a section of DNA molecule
4. having two different alleles for a particular gene locus.
5. having same alleles for a particular gene locus
6. is when an allele of a gene completely masks the allele of another gene

QUESTION SEVEN: NERVOUSE SYTEM

(6MARKS)

This is a diagram of nerve cell



A. State the type of nerve cell

.....(1mark)

B. State one main feature that Distinguish it from other types of nerve cells.

.....(1mark)

C. Name the parts laBeled 1 and 3

.....(1mark)

D. State the function of part labeled 3

.....(1mark)

E. Use a line and number to labeled these two parts on the diagram Nucleuses and cytoplasm

.....(2marks)

QUESTION EIGHT: SENSE ORAGNS

(15 MARKS)

A. This is a human ear diagram



i. Name the other sense organs you have rather than ear

.....(2mark)

ii. Name two sense organs those responD to chemicals

.....(2marks)

iii. Name these parts labeled 1 to 4

.....(4marks)

iv. Which labeled numBer has this function.
Collects the sound waves and directs to the ear canal

.....(1mark)

v. Write down the three main parts of ear

.....(3marks)

vi. Name the chemical defense of ear

.....(1mark)

B. Some animals are very sensitive of hearing like rabbits and dogs.

i. Explain why they became a highly sensitive of hearing

.....(2marks)

END