

R&PUBL IC OF SOMALILAND

FORM FOUR EXAMS, 2021

BIOLOGY



NATIONAL EXAMINATION BOARD



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Republic of Somaliland

Somaliland National Examination Board

Form Four

**Biology
Examination**

June 2021

TIME 2 HOURS

Plus 10 minutes for reading through the paper

INSTRUCTIONS TO CANDIDATES

This paper consists of 14 printed pages

Count them now. Inform the invigilator if there are any missing or extra pages

There are two parts:

PART ONE: Multiple Choice Questions 40 Marks

PART TWO: Structured Questions 60 Marks

TOTAL 100 Marks

Answer ALL questions in part 1 and 2.

- No extra papers and Mobiles is allowed

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

1

PART ONE: Multiple Choice Questions

20 items x 2 marks = 40 Marks

1. Crop farming can be divided into
 - a. Pastoralism
 - b. Horticulture
 - c. Field crop
 - d. Both A and B
2. Sensory neurons transmit impulses
 - a. The body to the CNS
 - b. The CNS to the body
 - c. Body to the heart
 - d. None of the above
3. Pyloric sphincter is a circular band of muscle at the lower end of
 - a. Kidney
 - b. Stomach
 - c. Liver
 - d. Spleen
4. How do proteins differ from lipids (fats)
 - a. Their chemical composition
 - b. Their energy value
 - c. Their role in the body
 - d. All of the above

5. Which of the following belongs to axial skeleton?
- Forelimb
 - Pectoral girdles
 - Skull
 - Pelvic girdles
6. Which of the following is not true for the function of root system
- To anchor the plant firmly in the soil
 - To photosynthesize
 - To absorb water & mineral salt
 - All of the above
7. Good health is defined as following except
- Physical fit
 - Well-adjusted in society
 - Being pessimistic
 - Undertaking mental & physical tasks without too much difficulties
8. The separation of the cytoplasm and the formation of two new daughter cells is called
- Metaphase
 - Anaphase
 - Telephase
 - Cytokinesis

9. Rotational grazing can help in controlling

- a. Tick
- b. Liver flukes
- c. Lice
- d. All of the above

10. The major function of Lysosomes is to:

- a. Digest food particles which range from individual proteins to complete micro-organisms
- b. Process and package food molecules into vesicles
- c. Isolate the cytoplasm from the external environment
- d. Control the cell activities and amount & type of enzymes

11. The dental formula of a cow (herbivore) is

- a. $\frac{0060}{6266}$
- b. $\frac{6600}{6662}$
- c. $\frac{0066}{6622}$
- d. $\frac{6600}{6266}$

12. Blood group with no antibodies is Blood group

- a. O
- b. A
- c. B
- d. AB

13. A marriage between heterozygous type B man and heterozygous type A blood woman what is the phenotypic ratio?

- a. 1:2:1
- b. 1:1:1:1
- c. 3:1
- d. 1:1

14. The DNA code for GAC (guanine, adenine, cytosine) would be transmitted from the nucleus to the cytoplasm as the messenger RNA code

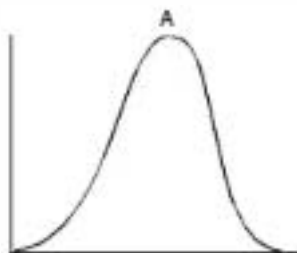
- a. GTG
- b. CUG
- c. CTG
- d. GCV

15. Cytoplasm consists of:

- a. All materials inside the plasma membrane and outside the nucleus
- b. All materials inside the nucleus
- c. Part of the materials outside the plasma membrane
- d. All of the above

16. Point A in the below figure is called _____ on enzymes

- a. Optimum point
- b. Enzyme-substrate complex
- c. Inhibitor
- d. None of the above



17. Aerobic respiration produces

- a. Alcohol
- b. Acid
- c. A and B
- d. Proteins

18. Basic monomers of proteins are

- a. Fatty acids
- b. Monosaccharides
- c. Amino acids
- d. Nucleotides

19. In which of the three major phases of cellular of cellular respiration acetyl co enzyme A combines with oxaloacetate to form a citrate?

- a. Glycolysis
- b. Krebs cycle
- c. Electron transport chain
- d. None of the above

20. Caponization is the process of removing tests from the

- a. Male birds and duck
- b. Male sheep and goat
- c. Male goats
- d. None of the above



PART TWO: STRUCTURED QUESTIONS

(80 marks)

1. What is the difference between

a) Phototropism and geotropism

(2 Marks)

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b) Positively phototropic and negatively phototropic

(2 Marks)

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c) Negatively geotropic and positively geotropic

(2 Marks)

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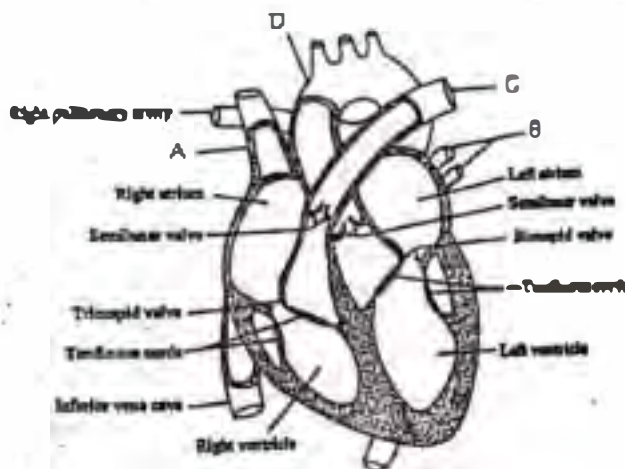
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2. The following table shows you the three basic shapes of bacteria. Complete the blank spaces using these terms: Bacilli, Spirals and Cocci (8marks)

No	Bacterial shape	Name of Bacteria
a		
b		
c		

3. The following diagram shows you the structure of the heart.



- a) Label the blood vessels represented by A to D (2 Marks)

A _____
B _____
C _____
D _____

b) Which blood vessel carries Oxygenated blood from lungs to the heart?

(2 Marks)

c) Explain the difference between systemic circulation and pulmonary circulation

(2 marks)

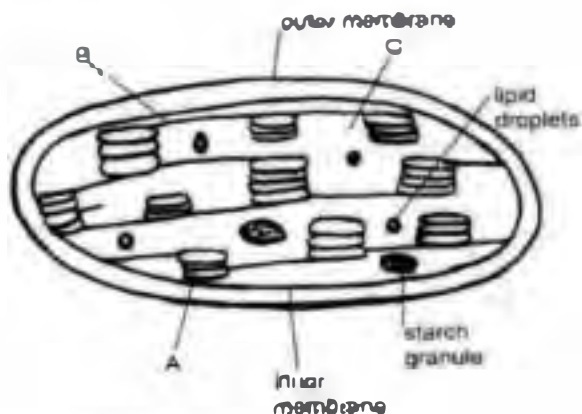
4. Biological molecules almost always use the same types of chemical reactions. called condensation reaction and hydrolysis reaction

a) Explain two ways in which these two types of reactions differ. (2 Marks)

b) Draw the structure of amino acid, what determines the properties of each amino acids (2 Marks)

c) Lipids are very diverse molecules. State two important features shared by all of them, (2 Marks)

5. Consider the following diagram of chloroplast structure and answer the related questions.



- a) Label the missing parts represented by (2 Marks)

A _____

B _____

C _____

D _____

- b) What function do part A and B do (2 Marks)

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- c) List two importance of photosynthesis in nature (2 Marks)

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6. Cells are produced in a continuous steps known as cell cycle which consists of two main stages;

a) Write these two main steps

(3 Marks)

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b) Draw the process of cell cycle and label the two major phases (1 Marks)

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c) State two events that occur during mitosis

(2 Marks)

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7. In livestock, animals are selected for the desired characteristics to breed.

Different characteristics are selected for ~~different standards~~

a) Compare the considered factors of cattle and sheep

(2 Marks)

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b) What factors are required to consider in breeding goals

(2 Marks)

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c) According to the methods of selection, which is the best reason out you answer.

(2 Marks)

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8. Respiring a glucose molecule to get the chemical energy stored in it needs to be broken down into smaller sub units. Glycolysis is part of this process

a) Draw the process of glycolysis (3 Marks)

b) State two products of glycolysis (1 Mark)

c) Does the process of glycolysis aerobic or anaerobic. Explain your answer?

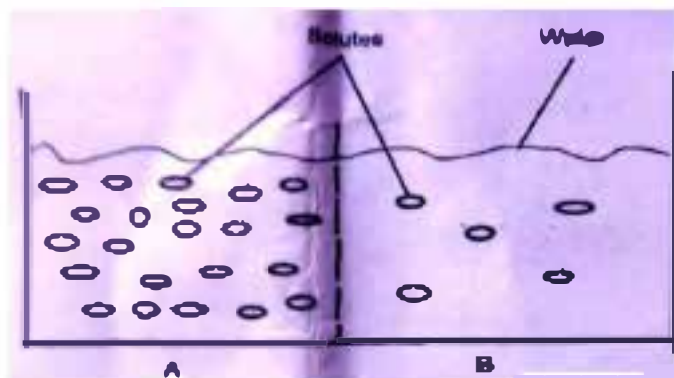
(2 Marks)

9. Plasma membrane separates the outside environment of the cell from its inside environment. Substances need to move in and out of the cell membrane

a) List up two passive transport mechanisms that help substances in and out the cell (2 Marks)

b) Compare between passive and active transport mechanisms (3 Marks)

- c) If solution A has a higher solute than solution B, in which direction will water move? (1 Mark)



10. Human life depends on good and healthy livestock. Poor livestock health leads reduction of yield from livestock. Many bacteria, viruses and fungi can affect the health of livestock.

- a. How can tell that an animal is sick? (2 Marks)

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- b. Explain the methods of controlling livestock diseases. (2 Marks)

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- c. Why animal hoofs are trimmed? (2 Marks)

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END