

**R&PUBLIC OF SOMALILAND**

**FORM FOUR EXAMS, 2017**

# **BIOLOGY**



**NATIONAL EXAMINATION BOARD**



Total Score

Name.....

School.....

Roll No.....

Republic of Somaliland

Somaliland National Examination Board

Form Four

**BIOLOGY  
EXAMINATION**

July 2017

TIME 2 HOURS

Plus 10 minutes for reading through the paper

**INSTRUCTIONS TO CANDIDATES**

This paper consists of 13 printed pages

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

There are two parts:

PART 1: 20 Multiple Choice Questions 20 Marks

PART 2: 11 Structured Questions 80 Marks

**TOTAL 100 Marks**

- Answer all questions in part 1 and 2.
- No extra paper is allowed.

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

Rough work area with horizontal lines.



( 20 Marks)

### PART 1: Multiple Choice Questions

1. In multicellular organism , the cell is unit of structure and also a unit of :
  - A. Organization
  - B. Function
  - C. Strength
  - D. Foundation
  
2. Normally photosynthesis does not take place in :
  - A. Palisade mesophyll
  - B. Spongy mesophyll
  - C. Guard cells
  - D. Epidermal cells
  
3. Which of the following equations is that of aerobic respiration ?
  - A.  $C_6H_{12}O_6 + 6O_2 \longrightarrow 6CO_2 + 6H_2O + \text{Energy}$
  - B.  $6CO_2 + 6H_2O + \text{Energy} \longrightarrow C_6H_{12}O_6 + 6O_2$
  - C.  $C_6H_{12}O_6 \longrightarrow 2C_3H_6O_3 + \text{Energy}$
  - D.  $C_6H_{12}O_6 \longrightarrow 2C_3H_5OH + \text{Energy}$
  
4. A nucleotide consist of :
  - A. Base , protein and phosphate
  - B. Base, sugar and phosphate
  - C. Lipids, carbohydrate and base
  - D. Base , protein and sugar
  
5. Which one of the following human diseases are bacterial disease :
  - A. Malaria
  - B. Tuberculosis
  - C. Amoebiasis
  - D. AIDS

6. Which of the following the immunity developed after contracting pathogens inside the body :
- A. Passive immune
  - B. Active Immune
  - C. Inherited Immune
  - D. Vaccination
7. Which one of the following livestock diseases are viral diseases :
- A. Anaplasmosia
  - B. Newcastle
  - C. Coccidiosis
  - D. Scours
8. The end product given by the process photosynthesis are :
- A. Carbon dioxide ,  $H_2O$  and Oxygen
  - B. Sugar and oxygen
  - C. Sugar and carbon dioxide
  - D. Sugar and energy
- 
9. In the process of anaerobic respiration by yeast cell , one of the following does not normally happen:
- A. Alcohol is produced
  - B. Oxygen is consumed
  - C. Some heat is produced
  - D. Carbon dioxide is produced.
10. The part of the living substance other than the nucleus is called :
- A. Protoplasm
  - B. Cytoplasm
  - C. Endoplasm
  - D. Ectoplasm

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11. When a cell having 12 chromosomes divide by mitosis, each of the daughter cells would receive :

- A. 6 chromosomes
- B. 12 chromosomes
- C. 24 chromosomes
- D. 3 chromosomes

12. Candidiasis is a disease caused by yeast – like fungi called:

- A. Ringworm
- B. Jock Itch
- C. Candida
- D. Athlete's foot

13. An \_\_\_\_\_ is a molecule that provokes a specific immune response:

- A. Anti body
- B. Antigen
- C. Lymphocytes
- D. B. Cells

14. Which one of the following is correct regarding the number of adenine ( A ) , guanine (G) thymine (T) and cytosine (C) in DNA molecule ?

- A.  $G = A$
- B.  $T = C$
- C.  $A + C = G + T$
- D.  $A + T = G + C$

15. Ribosomes occurs :

- A. Only prokaryotic cells
- B. Only eukaryotic plant cells
- C. Only eukaryotic animals cells
- D. Both prokaryotic and eukaryotic cells.



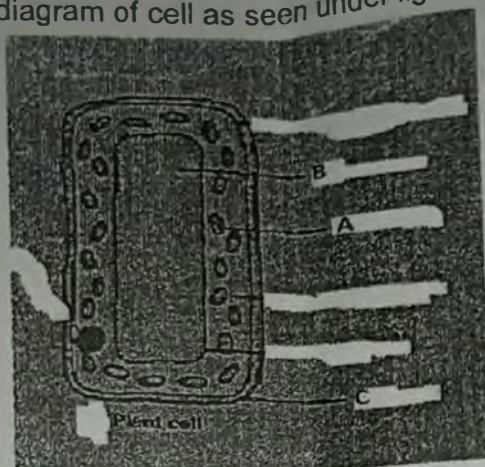
16. Aerobic respiration occurs :
- A. Only in animals
  - B. Only in plants
  - C. In plants and animals
  - D. Only under anaerobic conditions
17. The number of ATP molecule produced from the complete respiration of one molecule of glucose to carbon dioxide and water is:
- A. 2
  - B. 12
  - C. 24
  - D. 36
18. Chlorophyll appears green in colour because the pigment :
- A. Is fluorescent in the green wavelengths
  - B. Absorb light in the red blue wave lengths
  - C. Reflects light in the green wave lengths
  - D. Transmits blue and red.
19. Which one of the following structures does not contain DNA:
- A. Mitochondria
  - B. Chloroplast
  - C. Nucleus
  - D. Nucleolus.
20. The decrease in oxygen concentration at night ins due to :
- A. Absorption of  $\text{CO}_2$  by plants
  - B. Photosynthesis by plants
  - C. Respiration by plants and animals
  - D. Absorption of oxygen by potassium pyrogallate solution.

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( 80 Marks)

**PART 2: STRUCTURED QUESTION.**

1. The figure below is diagram of cell as seen under light microscope.



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A. Name the structures that show that this is a plant cell and not an animal cell.

A)..... (1 marks)

B)..... (1 marks)

C)..... (1marks)

B. Name one chemical compound that is only found in the structure labelled A and state its functions. ( 2 marks)

.....

C. What is the main chemical compound found in the structure labelled C ? State its functions. (2 marks)

.....

D. Name the fluid found in part labelled B and state its function. (2 marks)

.....

E. Name the structure that contains most of the cellular DNA . ( 2 marks)

.....



2. State the function of the following cell organelles.

A. Mitochondria:

(2 marks)

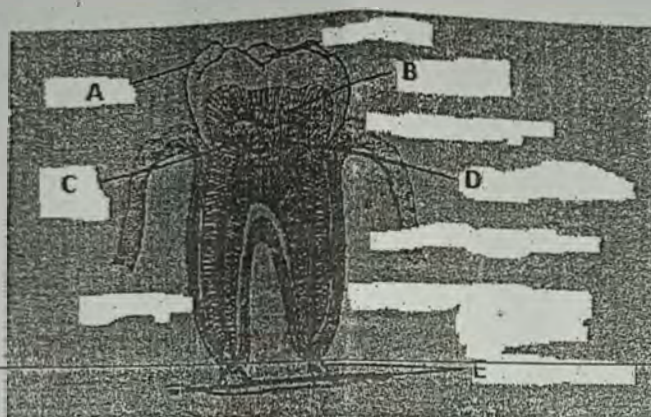
B. Chloroplast :

(2 marks)

C. Nucleolus:

(2 marks)

3. The figure below is a diagram of tooth :



A. Name the structures labled A, B and C

A : ..... ( 1mark)

B : ..... ( 1mark)

C : ..... ( 1mark)

B. What is the role of the parts labelled D and E

D: ..... ( 1 mark)

E: ..... ( 1 mark)

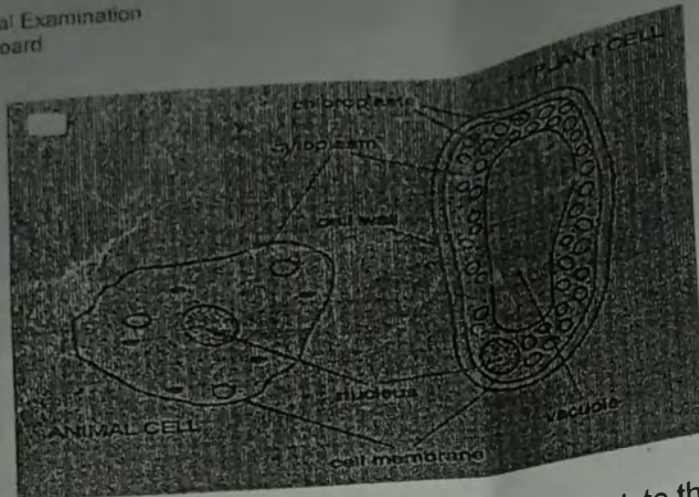
C. What type of each teeth is represented by the diagram Give a reason for your answer : ( 2 marks)

.....

.....

.....

4.



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- A. Use only the drawings above to copy and complete the table below to show three differences between plant and animal cells. (6 marks)

	Plant cells	Animal cells
1		
2		
3		

- B. What is the job of each of the following parts of a cell?

i. Nucleus

(1 mark)

.....

ii. Cellulose cell wall

(1 mark)

.....

iii. Cytoplasm

(1 mark)

.....

iv. Cell membrane

(1 mark)

.....

- C. i. What substances is contained in the chloroplasts?

(1 mark)

.....

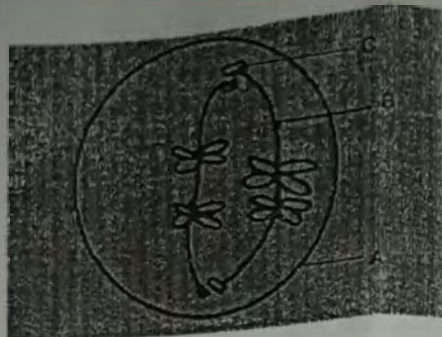
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- ii. Why is this substance important to all living things ?

(1mark)

.....

5. The diagram below represents a stage in cell division. Study the diagram and answer the questions below :



- A. Name the stage of cell division which the cell is undergoing (1 mark)

.....  
.....

- B. Name the parts labelled A, B and C

a) ..... (1mark)

b) ..... (1mark)

c) ..... (1mark)

- C. How is meiosis – I different from meiosis – II ? (2mark)

.....  
.....  
.....  
.....

- D. State the importance of meiosis? (1mark)

.....  
.....



6. A couple decide to have a child.

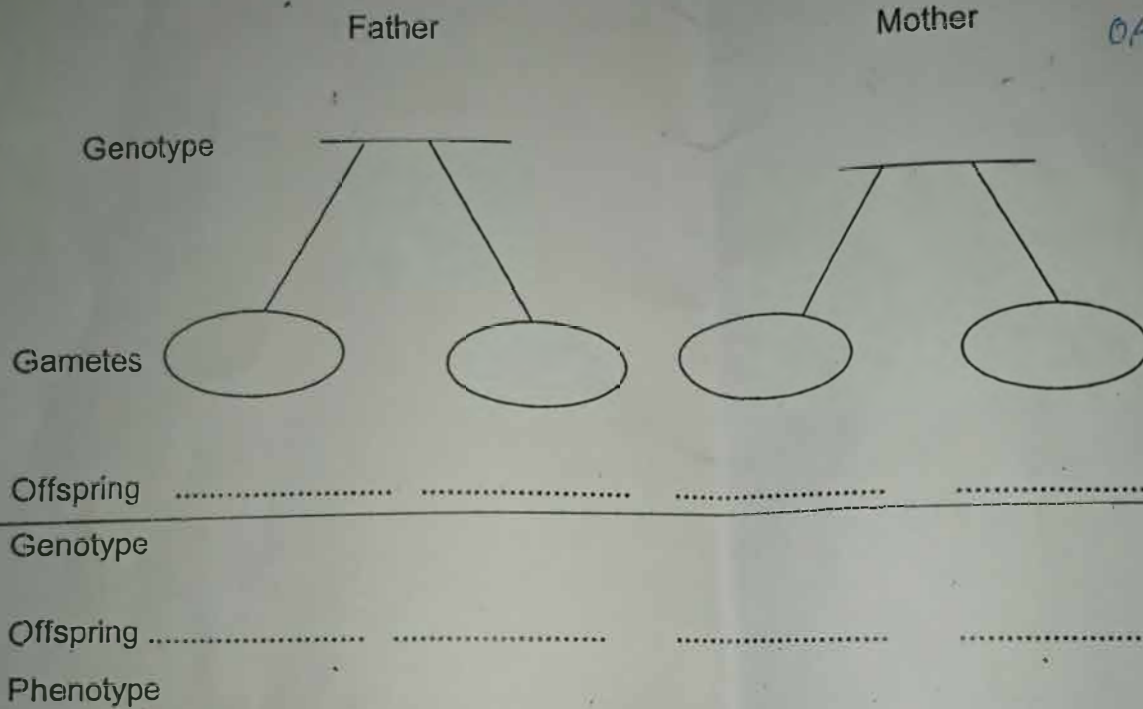
(14 Marks)

The father and Mother are both heterozygous for the gene for albinism.

Copy and complete the diagram below to show the genotypes of the parents, their possible gametes, and the possible genotypes and phenotypes of their children.

Use the symbol (A) for the normal allele and the symbol (a) for the albino allele.

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7. a) Write a word equation for the process of photosynthesis

(2marks)

b) Briefly describe how each of the following factors affect the rate of  
Photosynthesis:

i) Carbon dioxide concentration

(1mark)

ii) Temperature:

(1marks)

iii) Light intensity: (1 mark)

.....  
.....

iv) Water supply: (1mark)

.....  
.....

8. Define the following terms :

A. Parasite (1mark)

.....

B. Parasitism (1mark)

.....

C. Host (1mark)

.....

9. Name the causes of the following diseases:

A. East coast fever (1mark)

.....

B. Foot rot (1mark)

.....

C. Anthrax (1mark)

.....

10. What are the following appropriate methods of handling livestock

A. Culling (1mark)

.....

B. Docking (1mark)

.....

C. Caponization (1mark)

.....

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(8 marks)

11. Copy and complete the table below :

Disease and livestock attacked	Causal agent	Symptoms	Control measures
	Theileria parva	<ul style="list-style-type: none"> <li>• Swollen lymph nodes</li> <li>• Breathing difficulties</li> <li>• High body temperature</li> </ul>	<ul style="list-style-type: none"> <li>• Controlling ticks</li> <li>• Treating using appropriate drugs</li> <li>•</li> </ul>
Anaplasmosis it attacks cattle sheep and goats	Anaplasma mariginale		<ul style="list-style-type: none"> <li>• Controlling ticks</li> <li>• Treating using appropriate drugs</li> </ul>
Goccidiocsis It attacked calves , poultry , lambs and young rabbits	Goccidia-of elmeria spp	<ul style="list-style-type: none"> <li>• Diarrhea , which maybe whitish or blood stained</li> <li>• Ruffled feathers</li> <li>• Drooping wings</li> </ul>	
Trypanosomiasis It attacks cattle, sheep , goats, pigs, dogs and horses	Trypanosoma Spp		<ul style="list-style-type: none"> <li>• Controlling tsetse flies</li> <li>• Treating with appropriate drugs</li> </ul>

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END