

FEDERAL REPUBLIC OF SOMALIA

GRADE 12 EXAMS, 2021

BIOLOGY



OFFICE OF EXAMINATIONS AND CERTIFICATION



Somali Federal Ministry of Education, Culture & Higher Education

Form Four National Standardized Examinations.

MAY / JUNE 2021

BIOLOGY EXAMINATION

TIME: 2 HOURS

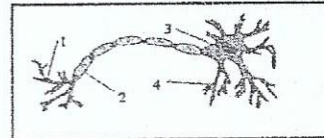
INSTRUCTIONS: Answer all questions in the ANSWER BOOKLET

Section A: select the most appropriate choice of the given alternatives (40 Marks)

1. The nerves that arise from the brain are known as.....
 - a. Spinal cord
 - b. Spinal nerve
 - c. Cranial nerves
 - d. Central nerves

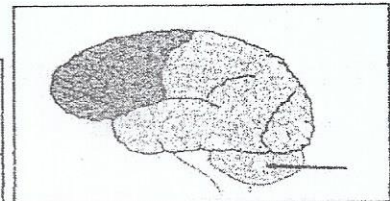
2. The nerve system that is controlled by the hypothalamus is said to be:
 - a. Voluntary
 - b. Sensory
 - c. Autonomic
 - d. peripheral

3. Using the diagram below indicate the part of the neuron that receives information from other neurons
 - a. 1
 - b. 2
 - c. 3
 - d. 4



4. Using the diagram below answer the question that follows

A girl was involved in an accident and the x-ray showed that the part of the brain indicated by the arrow was damaged due to trauma. What effects would this girl most likely



- a. Partial or complete memory loss
 - b. Body temperature fluctuation
 - c. Trouble in maintaining balance
 - d. Rapid breathing

5. The primary function of the melanin is to:
 - a. Produce vitamin D
 - b. Produce sebum
 - c. Waterproof the skin
 - d. Provide protection against the sun's UV

6. Ali was injected with penicillin through the skin using hypodermic needle. The first integumentary structure through which the needle passed was ...
- a. Reticular layer b. Epidermis c. Papillary layer d. Hypodermis
7. In humans, all are the function of the skin **except**.....
- a. Respiratory gas exchange b. Preventing unnecessary water loss
c. Excretion d. Regulation of body temperature
8. A type of bone that is classified as irregular bone is known as ...
- a. Leg bones b. Vertebrae c. Skull d. Wrist bones
9. Which of the following is **NOT** part of the appendicular skeleton
- a. Shoulder b. Hips c. Feet v. skull
10.releases excess water that helps the skin to regulate body temperature
- a. Sweat gland b. Sebaceous gland c. Oil gland d. Ceruminous gland
11. Ali has eaten a bread for breakfast, the glucose level of his blood will:
- a. Increase b. Decrease c. Remains the same d. Decrease and increase
12. The thyroxine hormone is secreted by...
- a. Pituitary gland b. Adrenal gland c. Thyroid gland d. Parathyroid gland
13. The tough outer membrane covering the brain and spinal cord of vertebrates is called...
- a. The dura mater b. The pia mater c. Arachnoid mater d. Cerebrospinal fluid
14. If one strand of a DNA is 5' ATCGTTAAGCGAGTCA '3 the complimentary strand would be:
- a. 3' TAGCAATTCGCTCAGT '5 b. 3' ACTGAGCGAATTGCTA '5
b. 3' TGA CTCGCTTAACGAT '5 d. 3' ATCGTTAAGCGAGTCA '5

15. A black Ox (Bb) was crossed with a white cow (bb). Identify the resulting phenotypic ratio.
- a. 0:1 black to white b. 1:1 black to white c. 1:0 black to white d. 3:1 black to white
16. According to Mendel the crossing between purple flower (PP) and a white flower (pp) results the F1 generation becoming:
- a. All white b. All purple c. 3 purple:1white d. 1purple:2white
17. Which of the following regions in Somalia do you expect to find a greater species diversity?
- a. Galgudud b. Benadir c. Bari d. Lower Juba
18. The groups of organisms that contain the largest estimated number of species are...
- a. Birds b. Plants c. Insects d. Mammals
19. Study the figure shown below, mention the part of the ear that is responsible for hearing:
- a. Semicircular canal c. Tympanum
- b. Cochlea d. Ear canal
-
20. Farah whose blood group is A heterozygous marries Fatima whose blood group is B heterozygous, what is the probability that one of their children become O.
- a. 25% b. 50% c. 75% d. 100%

Section B (10 Marks)

Relate the terms in column A with the meanings or function in column B using numbers

Column A	Column B
1. Meninges	() The largest and most complex part of the brain
2. Cerebrum	() the fluid that provides oxygen and nutrients to the brain
3. Cerebrospinal fluid	() The layer that covers the brain and spinal cord
4. Hypothyroidism	() the study of organism's genome
5. Genomics	() Thyroid hormone deficiency
6. Synovial fluids	() the place where two bones meet
7. Joint	() Lubricating substances found in joints
8. Codon	() Example of codominance and multiple alleles
9. DDT	() The triple base of the mRNA
10. ABO blood group system	() dichloro-diphenyl trichloethane

Section C (50 Marks)

1. Define the following terms: (4 marks)
 - a. Mutation
 - b. Neuron

2. State the two abnormalities related to the following thyroid activities. (6 Marks)
 - a. Hypothyroidism
 - b. Hyperthyroidism

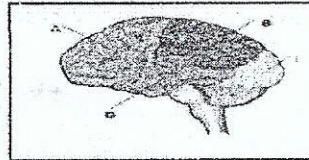
3. a) Differentiate between lipophilic and hydrophilic hormones (4 marks)
 b) Give examples of lipophilic hormones. (2 marks)

4. a) Define the term genetic engineering (3Marks)
 b) Genetic engineering uses many methods and tools, list any four of them. (4 marks)

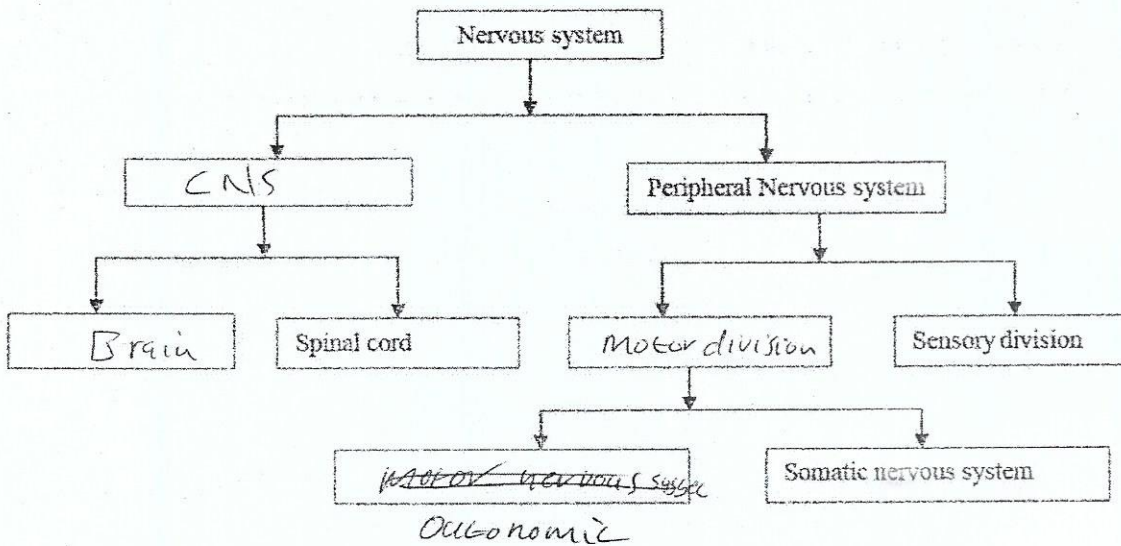
5. Differentiate between species diversity and genetic diversity (4 marks)

6. List two examples of: (4 marks)
 - a. Steroid hormones
 - b. Non steroid hormones

7. Differentiate between type I diabetes and type II diabetes. (4 marks)
8. In the diagram below indicate the lobes of the human brain and name the parts that are numbered A, B, C and D. (4 marks)



9. A colour blind man (X^bY) marries a carrier woman (X^BX^b). What is the probability that their children will be colour blind? (7 marks)
10. The flow chart below indicates the parts of the nervous system. Complete the missing parts in the boxes (4 marks)



END