

GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate of Education Examination

0510 BIOLOGY 1

JUNE 2023

ORDINARY LEVEL

Centre Number	
Centre Name	
Candidate Identification Number	
Candidate Name	

Mobile phones are NOT allowed in the examination room.

MULTIPLE CHOICE QUESTION PAPER

One and a half hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed "**Ordinary Level – 0510 Biology 1**".
4. Fill in the information required in the spaces above.
5. Fill in the information required in the spaces provided on the answer sheet using your HB pencil:
Candidate Name, Exam Session, Subject Code and Candidate Identification Number.
Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.

How to answer the questions in this examination

6. Answer **ALL** the 50 questions in this Examination. All questions carry equal marks.
7. Non-programmable Calculators are allowed.
8. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide which answer is appropriate. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.

For example, if **C** is your correct answer, mark **C** as shown below:

[A] [B] [~~C~~] [D]

9. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
10. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
11. Do all your rough work in this booklet using the blank spaces in the question booklet.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

Turn Over

SECTION I
Questions 1-7
(Seven questions)

Directions: Each of these questions or incomplete statements is followed by four suggested answers. Select the best answer in each case and mark the answer sheet appropriately.

1. An organism which stores food in the pyrenoid.
A Bacteria.
B Amoeba.
C Spirogyra.
D Fungi.
2. Where does deamination occur in the body?
A Liver.
B Stomach.
C Lungs.
D Kidney.
3. What is the effect of untreated sewage in water?
A Increases the population of aquatic organisms.
B Increases oxygen solubility in water.
C Causes turbidity.
D Causes Eutrophication.
4. Where in the nephron is glucose reabsorbed?
A Loop of Henle.
B Distal convoluted tubule.
C Collecting duct.
D Proximal convoluted tubule.
5. In the water cycle which process causes water molecules to return to the atmosphere?
A Absorption.
B Condensation.
C Evaporation.
D Precipitation.
6. Which of these prevents contraction of the uterine wall during pregnancy?
A Progesterone.
B Oestrogen.
C Luteinizing hormone.
D Follicle stimulating hormone.

2

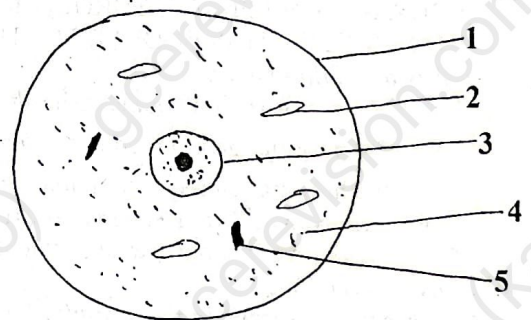
7. The following organisms make up a food chain: snake, man, frog, locust, groundnut plant. Which of these is a primary consumer?
A Man.
B Frog.
C Locust.
D Snake.

SECTION II
Questions 8-20
(Thirteen questions)

Directions: This group of questions relates to biological diagrams. Select the best answer for each question.

8. Which blood vessel carries deoxygenated blood from the heart to the lungs?
A Renal artery.
B Renal vein.
C Pulmonary vein.
D Pulmonary artery.

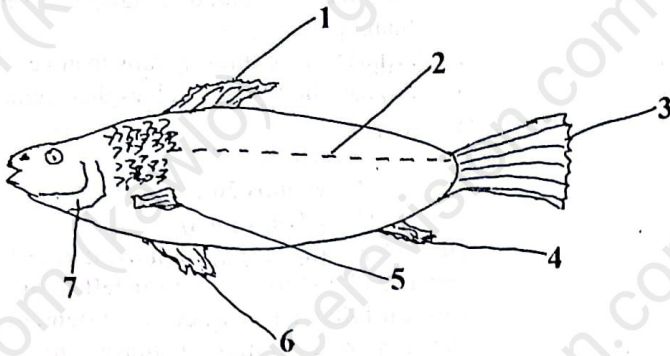
9. Below is the diagram of an animal cell.



Which numbered structure controls all the activities of the cell?

- A 2.
 - B 3.
 - C 4.
 - D 5.
10. Which of the following parts of a flower make up the stamen?
A Filament and anthers.
B Stigma and anthers.
C stigma and style.
D Style and filament.

11.



Which numbered structure(s) in the diagram of the fish control rolling and yawing?

- A 1 and 3.
- B 1 and 4.
- C 4 and 5.
- D 5 and 6.

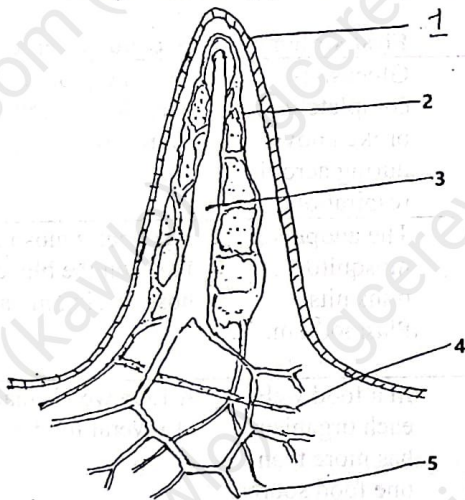
12.

Where in the digestive system of man is hydrochloric acid produced?

- A Ileum.
- B Colon.
- C Stomach.
- D Liver.

13.

In which numbered structure of the villus are fatty acids and glycerol transported?



- A 2.
- B 3.
- C 4.
- D 5.

14.

Which structure in the mammalian brain is concerned with involuntary and reflex activities?

- A Hypothallus.
- B Medulla oblongata.
- C Cerebellum.
- D Cerebrum.

15.

Water enters a germinating seed through the:

- A Testa.
- B Hilum.
- C Cotyledon.
- D Micropyle.

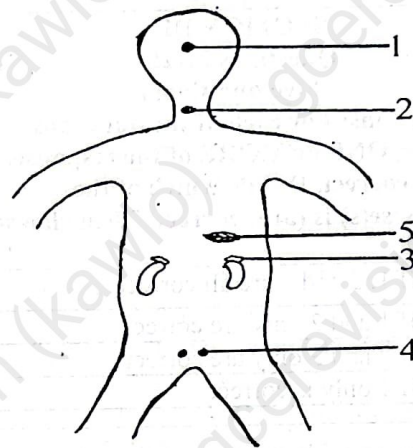
16.

Where does implantation take place in the female reproductive system?

- A Oviduct.
- B Uterus.
- C Fallopian tube.
- D Ovary.

17.

The diagram below shows the position of endocrine glands in man:

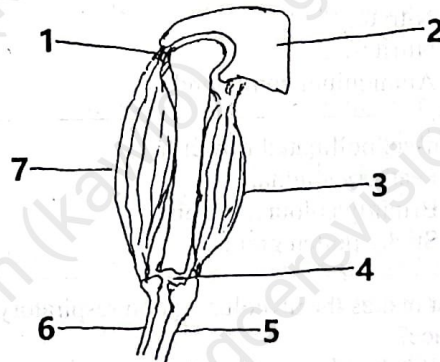


Which numbered structure secretes adrenaline?

- A 2.
- B 3.
- C 4.
- D 5.

18.

Below is the diagram of the fore arm.



What happens during stretching of the arm?

- A 3 contracts and 7 also contracts.
- B 3 relaxes and 7 contracts.
- C 3 contracts and 7 relaxes.
- D 3 relaxes and 7 also relaxes.

Turn Over

19. Refraction of light rays in the eye follows this order:
- Cornea, lens, aqueous humour, vitreous humour.
 - Cornea, vitreous humour, lens, aqueous humour.
 - Lens, aqueous humour, Cornea, vitreous humour.
 - Cornea, aqueous humour, lens, vitreous humour.

20. Which structure in the mammalian skin is sensitive to pressure?
- Pacinian corpuscles.
 - Meissner's corpuscles.
 - Hair plexus.
 - Nerve fibre.

SECTION III
Questions 21-25
(Five questions)

Directions: For each of the questions below, ONE or MORE of the response(s) is (are) correct. Decide which of the response(s) is (are) correct. Then choose:

A	If 1, 2 and 3 are all correct
B	If 1 and 2 only are correct
C	If 2 and 3 only are correct
D	If 1 only is correct

21. A solution with the same water potential as its surrounding can be described as:
- Isotonic.
 - Hypertonic and hypotonic.
 - Hypotonic and isotonic.
22. In which form(s) do plants obtain nitrogen from the soil?
- Nitrates.
 - Nitrites.
 - Ammonium compounds.
23. An insect pollinated flower has:
- Feathery stigma.
 - Brightly coloured petals.
 - Sticky pollen grains.
24. What makes the alveolus a good respiratory surface?
- It is highly permeable.
 - It is highly vascularized.
 - It has a thick epithelium.

25. Arteries can be distinguished from veins in that:
- Arteries carry blood at higher pressure than veins.
 - Arteries have thicker walls than veins.
 - Arteries have many valves than veins.

SECTION IV
Questions 26-30
(Five Questions)

Directions: Each of the following questions consists of a statement in the left-hand column followed by a second statement in the right-hand column. Choose your answer A, B, C or D as explained on the table below.

	First statement	Second statement	
A	True	True	2 nd statement is a correct explanation of the first.
B	True	True	2 nd statement is NOT a correct explanation of the first.
C	True	False	
D	False	True	

	First statement	Second statement
26	Glucose is completely broken down during aerobic respiration.	The end products of aerobic respiration are more toxic.
27	The anopheles mosquito transmits Plasmodium.	Anopheles mosquito feeds on the blood of its host causing malaria.
28	In a food web, each organism has more than one food source.	A food web is made up of several food chains.
29	During photosynthesis, light energy is converted to chemical energy.	Green plants combine carbon dioxide and water using solar energy to produce organic food.
30	The cell wall in a plant cell is made up of chitin.	Cellulose provides roughage and prevents constipation in human diet.

SECTION V
Questions 31-40
(Ten questions)

Directions: Each question consists of four lettered headings A, B, C, D. Select the heading which is closely related to the description which follows.

31.

- A Carbon dioxide.
- B Carbon monoxide.
- C Chlorofluorocarbons.
- D Sulphur dioxide.

Destroys leaves of plants through the formation of acid rain.

32.

- A Cell membrane.
- B Chloroplast.
- C Nucleus.
- D Cellulose cell wall.

Selectively controls materials entering and leaving the cell.

33.

- A Salivary gland.
- B Gastric gland.
- C Pancreas.
- D Kidney.

Plays a vital role in the regulation of blood glucose level.

34.

- A Testosterone.
- B Oxytocin.
- C Oestrogen.
- D progesterone

Causes uterine contractions during labour.

35.

- A Hip joint.
- B Knee joint.
- C Elbow joint.
- D Wrist joint.

Contributes to the extension of the fore limb.

36.

- A Pepsinogen.
- B Trypsinogen.
- C Androgen.
- D Glycogen

An inactive form of an enzyme produced in the stomach.

37.

- A Mosquito.
- B Cockroach.
- C Housefly.
- D Honey bee.

An example of a social insect.

38.

- A Fish.
- B Reptiles.
- C Mammals.
- D Birds.

Are viviparous.

39.

- A Mutualism.
- B Commensalism.
- C Parasitism.
- D Predation.

Relationship between rhizobium and leguminous plant.

40.

- A Nitrobacter.
- B Azobacter.
- C Denitrifying bacteria.
- D Nitrosomonas.

Converts soil nitrates into atmospheric nitrogen.

SECTION VI
Questions 41-50
(Ten questions)

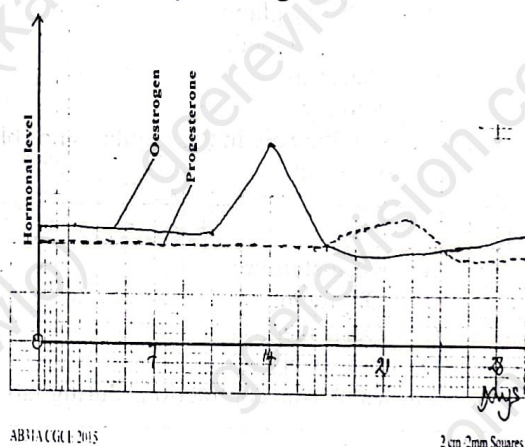
Directions: This group of questions deals with biological situations. Each situation is followed by a set of questions. Select the best answer for each question.

41.

In an experiment to measure the rate of water uptake, a leafy shoot is cut under water and the cut end fitted into a rubber tubing of the potometer. Why was the shoot cut under water?

- A To prevent the leaves from drying.
- B To prevent air bubbles entering the xylem vessels.
- C To enable the shoot take in enough water.
- D To enable the shoot remain fresh throughout the experiment.

42. In a demonstration to find out the food sample being tested, 1cm^3 of dilute sodium hydroxide solution was added to 3cm^3 of test solution drop wise. The test tube was shaken thoroughly. A purple colour was observed at the end. Which food substance was being tested and what is the name of the test?
- Fats; osmic acid Test.
 - Fats; Sudan III Test.
 - Protein; Biuret Test.
 - Protein; Millon's Test.
-
43. A couple both have blood group AB. What percentage of the offspring will have the same blood group AB as their parents?
- 100%.
 - 75%.
 - 50%.
 - 25%.
-
44. In testing a leaf for starch, a leaf from a green plant that has been exposed to sunlight for at least 5 hours was detached and dipped in boiling water for 30 seconds. Why was the leaf dipped in boiling water for 30 seconds?
- To remove the chlorophyll.
 - To activate enzymes.
 - To convert glucose to starch.
 - To kill the protoplasm.
-
45. In an experiment to find out if heat is given off by germinating seeds. The seeds were initially soaked in water for 24 hours and later soaked for 15 minutes in sodium oxo chlorate and then rinsed in water. Why were the seeds soaked in oxo chlorate?
- To increase the rate of germination.
 - To kill fungal spores on the grains.
 - To prevent oxygen entering the seeds.
 - To absorb carbon dioxide present in the flask.
-
46. During epigeal germination, the plumule and cotyledons are carried out of the soil. This is brought about by:
- Elongation of both hypocotyl and epicotyl.
 - Elongation of both plumule and radicle.
 - Elongation of epicotyl.
 - Elongation of hypocotyl.
-
47. When a marine Amoeba is put in fresh water environment. It will,
- Absorb much water swells and bursts.
 - Give out much water, become dehydrated and dies.
 - Develop a contractile vacuole to collect excess water.
 - Form pseudopodia and moves away.
-
48. Excess chemical fertilizers from an industry were washed off by rain water into a pond. What was the effect on the organisms in the pond?
- They suffocated and died due to lack of oxygen.
 - They grew rapidly occupying other areas.
 - They were exposed to predators as the water became hot.
 - Their number increased tremendously.
-
49. The graph below refers to the level of two hormones observed in blood within a month in a sixteen-year-old girl.



The increase in the level of oestrogen between Day 13 and Day 15 is due to:

- Thickening of the uterine wall.
 - Development of corpus luteum.
 - Release of egg from the ovary.
 - Peeling off of the uterine wall.
-
50. During vigorous activity there is overheating which results in much heat being lost through the skin. This is as a result of:
- Increased metabolism
 - Shivering.
 - Vasoconstriction.
 - Vasodilation.

STOP

GO BACK AND CHECK YOUR WORK