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The Teachers' Resource Unit and the Regional Inspectorate of Pedagogy, in collaboration with NASTA	SUBJECT CODE NUMBER <b>0510</b>	PAPER NUMBER <b>1</b>
	GENERAL CERTIFICATE OF EDUCATION REGIONAL MOCK EXAMINATION	
CANDIDATE NAME: ..... CANDIDATE NUMBER: ..... CENTRE NUMBER: .....	SUBJECT TITLE <b>BIOLOGY</b>	
<b>ORDINARY LEVEL</b>		

**Time Allowed: One and a half hours**  
**INSTRUCTIONS TO CANDIDATES:**

Mobile phones are **NOT ALLOWED** in the examination room.

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

**Before the Examination begins:**

- Check that this question booklet is headed "Ordinary level -0510 code and subject title—BIOLOGY -Paper 1".
- Insert the information required in the spaces above.
- Without opening the booklet, pull out the answer sheet carefully from inside the front cover of this booklet. 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.
- Insert the information required in the spaces provided on the answer sheet using your HB pencil:

**Candidate Name, Centre Number, Candidate Number, Subject Code Number, and Paper number**

**How to answer questions in this examination:**

- Answer ALL the 50 questions in this examination. All questions carry equal marks.
- Non-programmable calculators are allowed.
- For each question there are four suggested answers, A, B, C and D. Decide which answer is correct. 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]
- Mark only one answer for each question. If you mark more than one answer, you will score zero for that question. If you change your mind about an answer, erase the first mark carefully, and then mark your new answer.
- Avoid spending much time on any question. If you find a question difficult, move to the next. You can come back to the question later.
- Do all rough work in this booklet using, where necessary, the blank spaces in the question booklet.
- You must not take this booklet and answer sheet out of the examination room. All question booklets and answer sheets will be collected at the end of the examination.

### SECTION I: 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.

- Which of these diseases is transmitted by droplet infection?  
A. COVID-19  
B. Malaria  
C. AIDS  
D. Chlamydia
- A chemical element found in proteins but not in lipids is:  
A. Carbon  
B. Nitrogen  
C. Hydrogen  
D. Oxygen
- The food produced during photosynthesis is transported from the leaves to other parts of the plant as:  
A. Sucrose  
B. Glucose  
C. Starch  
D. Carbohydrates
- Organisms that occupy the second trophic level in an ecosystem are:  
A. Herbivores  
B. Carnivores  
C. Omnivores  
D. Decomposers
- Small circular pieces of DNA found in certain bacteria are called:  
A. Vectors  
B. Recombinant DNA  
C. Plasmids  
D. Inoculum
- The hormone that is responsible for the development of secondary sexual characteristics in female humans is:  
A. Progesterone  
B. Follicle stimulating hormone  
C. Luteinising hormone  
D. Oestrogen
- Which of the following occurs during inspiration in man?  
A. The external intercostal muscles contract  
B. The diaphragm muscles relax  
C. The ribs move downward and outward  
D. The volume of the thoracic cavity decreases

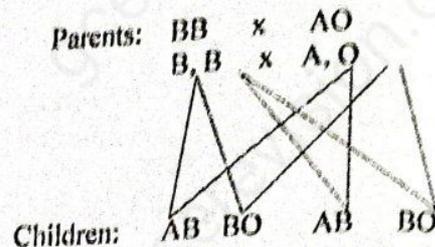
### SECTION II: Thirteen Questions

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

- The structure that prevents a turgid plant cell from bursting is the:  
A. Cell membrane  
B. Cell wall  
C. Nucleus  
D. Cytoplasm
- Consider the flow diagram below:  
Algae → Tadpole → Tilapia → Shark →  
Which of the organisms has the least amount of stored energy?  
A. Algae  
B. Tadpole  
C. Shark  
D. Tilapia

- Which structure in the mammalian heart prevents oxygenated blood from mixing with deoxygenated blood?  
A. Bicuspid valves  
B. Tricuspid valves  
C. Auricles  
D. Septum

- The part of the brain that is concerned with osmoregulation is?  
A. Cerebrum  
B. Cerebellum  
C. Medulla oblongata  
D. Hypothalamus
- The genetic diagram below shows the inheritance of blood groups in humans.



What is the probability of having a child of blood group "O" from this couple?

- A.  $\frac{1}{4}$   
B. 0  
C.  $\frac{1}{2}$   
D. 1
- In which part of the female reproductive system is the egg produced?  
A. Oviduct  
B. Uterus  
C. Ovaries  
D. Vagina
- Which structure in the hibiscus flower attracts insects for pollination?  
A. Sepals  
B. Nectary  
C. Petals  
D. Stigma
- In which part of the gut does the chemical digestion of lipids occur?  
A. Mouth  
B. Stomach  
C. Duodenum  
D. Colon
- Where does the reabsorption of water take place in the kidney nephron?  
A. Glomerulus  
B. Capsular space  
C. Bowman's capsule  
D. Distal convoluted tubule

- Which of these numbered structures control the pitching movement in the fish?



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

18. The structure that produces sperms in the male reproductive system is:

- A. Seminiferous tubules
- B. Epididymis
- C. Urethra
- D. Scrotum

19. The structure in the mammalian eye that protects the other parts of the eye is:

- A. Choroid
- B. Sclera
- C. Lens
- D. Retina

20. The antiseptic oily liquid in the mammalian skin is secreted by:

- A. Sweet gland
- B. Sebaceous gland
- C. Horny layer
- D. Meissner's corpuscle

**Section III: Five Questions**

Directions: For each of the questions below, ONE or MORE of the responses is (are) correct. Decide which of the responses is (are) correct and then choose:

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

**DIRECTIONS SUMMARIZED**

A	B	C	D
1,2,3	1,2 only	2,3 only	1 only

21. During epigeal germination:

- 1. Hypocotyl elongates
- 2. Epicotyl elongates
- 3. Cotyledon remains in the soil

22. Anaerobic respiration in animals produces:

- 1. Lactic acid
- 2. Energy
- 3. Carbon dioxide

23. Is used during photosynthesis:

- 1. Oxygen
- 2. Water
- 3. Carbon dioxide

24. Is a ball and socket joint:

- 1. Hip
- 2. Shoulder
- 3. Elbow

25. Adds nitrogen to the soil:

- 1. Nitrification
- 2. Nitrogen fixation
- 3. Denitrification

**Section IV: 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. Decide whether the first statement is true or false. Also decide whether the second statement is true or false. Then, on the answer sheet, mark:

- A. If both statements are true and the second statement is the correct explanation of the first statement.
- B. If both statements are true but the second statement is NOT the correct explanation of the first statement.
- C. If the first statement is true but the second statement is false.
- D. If the first statement is false but the second statement is true.

**DIRECTIONS SUMMARIZED**

	First statement	Second statement	
A	True	True	2 <sup>nd</sup> statement is a correct explanation of the 1 <sup>st</sup>
B	True	True	2 <sup>nd</sup> statement is NOT a correct explanation of the 1 <sup>st</sup>
C	True	False	
D	False	True	

	First statement	Second statement
26.	Malaria leads to anaemia.	Plasmodium attacks and destroys the red blood cells.
27.	The biceps and triceps muscles contracts simultaneously.	The biceps and triceps muscles are antagonistic.
28.	The blood in the glomerulus of the kidney nephron is under high pressure.	The afferent arteriole of the kidney nephron is narrower than the efferent arteriole.
29.	Only 10% of energy stored in the producers is transferred to the primary consumers in an ecosystem.	Most light rays do not have the appropriate wavelength that can be absorbed by chlorophyll.
30.	The bread mould feeds on dead organic matter.	The bread mould practises holozoic nutrition.

**SECTION V: Ten Questions**

Directions: each of these questions consists of four lettered headings A, B, C, D. select the heading which is closely related to the description that follows.

31. Reduces friction between membranes during breathing

- A. Synovial fluid
- B. Amniotic fluid
- C. Cerebro-spinal fluid
- D. Pleural fluid

32. Joins DNA fragments together.

- A. Plasmid.
- B. Clone.
- C. Enzymes.
- D. Ligase.

33. Digests proteins in the duodenum

- A. Trypsin
- B. Pepsin
- C. Erepsin
- D. Rennin

34. Promotes the absorption of calcium in the body  
 A. Vitamin A  
 B. Vitamin B  
 C. Vitamin C  
 D. Vitamin D
35. Interferes with the oxygen-carrying capacity of haemoglobin in blood  
 A. Carbon dioxide  
 B. Carbon monoxide  
 C. Sulphur dioxide  
 D. Nitrogen dioxide
36. Inversely affects the rate of transpiration  
 A. Light intensity  
 B. Temperature  
 C. Humidity  
 D. Air velocity
37. Relationship between Rhizobium and leguminous plants  
 A. Mutualism  
 B. Parasitism  
 C. Commensalism  
 D. Predation
38. Used in the biotechnological process of baking  
 A. Bacteria  
 B. Yeast  
 C. Virus  
 D. Bread mould
39. Eliminates excess water from an Amoeba cell  
 A. Cell membrane  
 B. Nucleus  
 C. Contractile vacuole  
 D. Pseudopodia
40. Adaptation of birds to flight  
 A. Crop  
 B. Gizzard  
 C. Beak  
 D. Wings

#### SECTION VI: Ten Questions

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

41. A patient came to the hospital, presenting with high fever, dry cough and difficulty in breathing. Which disease will you suspect?  
 A. COVID-19  
 B. Malaria  
 C. Meningitis  
 D. AIDS
42. In an ecosystem, if there are bacteria and fungi, they will always occupy the last trophic level. This is because they:  
 A. Require little energy to survive  
 B. Feed on dead organic matter  
 C. Convert solar energy into chemical energy  
 D. Are fewer in number
43. The shoots of plants always grow upwards. This is because they:  
 A. Are positively geotropic  
 B. Are negatively phototropic  
 C. Have to absorb light for photosynthesis.  
 D. Have to absorb water from the atmosphere.

44. Spirogyra is able to produce its own food because:  
 A. It is a unicellular filamentous alga  
 B. It is chlorophyllous  
 C. It can absorb water and carbon dioxide in the atmosphere  
 D. It has a nucleus that controls all the activities of the cell.
45. At very high temperatures, the rate of photosynthesis reduces or may completely stop because:  
 A. Enzymes inactivated  
 B. Plants cannot resist high temperature  
 C. Enzymes are activated  
 D. Enzymes are denatured
46. Which of the following occurs when the hand accidentally touches a hot object?  
 A. Sensory impulses are fired through the dorsal root to the spinal cord  
 B. Motor impulses are fired through the ventral root to the brain  
 C. Pain receptors on the hand are inactivated to cause the person not to feel pains  
 D. The biceps muscles relax while the triceps muscles contracts
47. It is common to see a couple with normal skin colour having an albino child in our community this is because:  
 A. Each parent of the child has a recessive allele for albinism  
 B. Albinism is caused by a dominant gene  
 C. The parents of the child most have failed to perform certain traditional rites and the gods cursed them  
 D. One of the parents of the child most have laughed at an albino from another couple
48. You are a representative of a Non- Governmental Organization (NGO) concerned with the protection of the environment. Which of these reasons would you use to convince your community that deforestation has a negative effect on to the environment?  
 A. It creates more space for animals to occupy.  
 B. It destroys farmlands  
 C. It accumulates carbon dioxide in the atmosphere, leading to global warming  
 D. It absorbs green-house gases from the atmosphere.
49. The eye defect that causes light rays from far objects to focus in front of the retina can be corrected by:  
 A. Using a convex lens  
 B. Using a concave lens  
 C. Eye surgery  
 D. Using a converging lens
50. In an experiment to prove that photosynthesis has occurred, the leaf of the plant is first boiled in water and then in alcohol. Why is the leaf boiled in alcohol?  
 A. To kill the cell protoplasm  
 B. To soften the leaf  
 C. To burst starch grains  
 D. To remove chlorophyll from the leaf.

**END. GO BACK AND CHECK YOUR WORK**