

0510 BIOLOGY 1

JUNE 2020

ORDINARY LEVEL

Centre Number	
Centre Name	
Candidate Identification No.	
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. Movement of water molecules from a region of high concentration of water molecules to a region of low concentration of water molecules is
A Absorption
B Diffusion
C Osmosis
D Osmoregulation

2. What occurs when the leaves of a plant lose more water than the plant gets from the soil?
A Wilting
B Plasmolysis
C Turgidity
D Guttation

3. Which of the following processes uses up energy?
A Active transport
B Enzymatic digestion
C Osmosis
D Ultra-filtration

4. The parts of the mammalian heart containing oxygenated blood are the
A Right atrium and left atrium
B Right atrium and right ventricle
C Left atrium and left ventricle
D Left ventricle and right ventricle

5. The Chloroplast of plant cells
A Store food
B Absorb light energy for photosynthesis
C Maintain shape of plant cells.
D Convert sugar into starch

6. One method of spread of AIDS (Acquired Immune Deficiency Syndrome) is
A Through Screened blood transfusion
B Exchange of sterilized surgical equipment (blades, needles)
C During pregnancy.
D During unprotected sexual intercourse with an infected person.

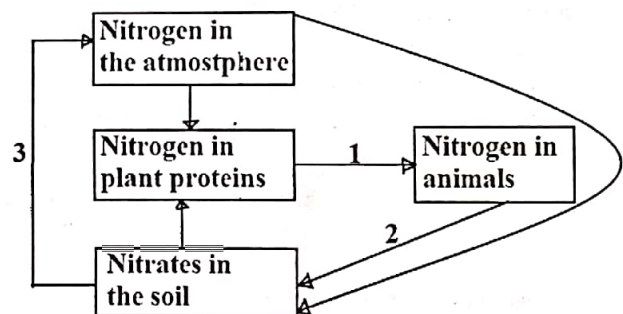
7. Causes Malaria
A Mosquito
B Plasmodium
C Bacteria
D Virus

SECTION II
Questions 8-20
(Thirteen questions)

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

8. In the diagram of an amoeba, the contractile vacuole functions in
A Reproduction
B Food storage
C Osmoregulation
D Gaseous exchange

9. This concerns the nitrogen cycle shown below:



What process is represented by arrow 3?

- A Denitrification..
 - B Nitrogen fixation.
 - C Nitrification.
 - D Lightning.
-
10. Below is a food chain in a garden ecosystem.
- Cabbage → Caterpillar → Hen → Hawk
- Identify the herbivore in the food chain
- A Caterpillar.
 - B Hen.
 - C Hawk.
 - D Cabbage.

11. Spirogyra is autotrophic because of the presence of

- A Cellwall
- B Pyrenoid
- C Mucilage
- D Chloroplast

12. This structure in the eye has a high concentration of light sensitive cells (rods and cones)

- A Choroid
- B Sclera
- C Cornea
- D Retina

13. Transports oxygenated blood from the lungs to the heart in the mammalian circulatory system.

- A Pulmonary artery
- B Aorta
- C Pulmonary vein
- D Vena cava

14. An endocrine gland in the human body that produces a hormone which increases the rate of heart beat

- A Thyroid gland
- B Pancreas
- C Adrenal gland
- D Pituitary gland

15. Produces an oily secretion in the skin which keeps it supple.

- A Subcutaneous layer
- B Sebaceous gland
- C Sweat gland
- D Meissner's corpuscle

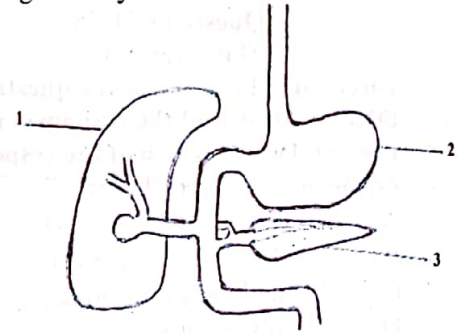
16. Which part of the mammalian brain is responsible for voluntary (conscious) activities of the body?

- A Hypothalamus.
- B Mid-brain.
- C Cerebrum.
- D Medulla Oblongata.

17. Which structure in the brain is responsible for balance and posture?

- A Cerebellum.
- B Mid-brain.
- C Medulla oblongata.
- D Hypothalamus.

18. Below is the diagram of part of the human digestive system.



How is structure 3 important in homeostasis?

- A Carries out deamination.
- B Carries out detoxification.
- C Breaks down red blood cells.
- D Production of insulin.

19. Which structure in the male reproductive system produces sperms?

- A Testes
- B Epididymis
- C Prostate gland
- D Penis

20. Why does the left ventricle of the mammalian heart have thicker walls?

- A It holds more blood.
- B It pumps blood over a long distance.
- C It carries blood loaded with food and Oxygen.
- D It carries blood under low pressure.

SECTION III
Questions 21-25
(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. 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. Unicellular organisms lack a transport system because
1 They have a large surface area to volume ratio.
2 Substances diffuse over short distances in them.
3 Their body makes intimate contact with their surroundings.
-
22. Mature Red Blood Cells
1 Function in transport
2 Lack nucleus
3 Lack haemoglobin
-
23. During inspiration,
1 The diaphragm muscle contracts.
2 The pressure in the lungs decreases.
3 The rib cage moves upwards and outwards.
-
24. During overheating,
1 Superficial blood vessels constrict.
2 More sweat is produced.
3 Erector pilli muscle relaxes.
-
25. To focus on near objects
1 The ciliary muscle contracts.
2 The suspensory ligament slackens.
3 The lens becomes thicker.

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.

Directions			
	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.	Gametes are generally produced by mitosis.	Body cells are produced by mitosis.
27.	The image of an object formed on the retina is inverted.	Light sensitive cells are found on the retina.
28.	In Phototropism, the stimulus is gravity.	Shoots are positively phototropic.
29.	Short sightedness occurs when an individual can only see objects clearly when they are close to the eye.	Short sightedness is corrected using concave or diverging lenses.
30.	The bicuspid and tricuspid valves close when the ventricles contract.	Valves close to prevent backflow of blood.

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 Starch and water
 - B Glucose and oxygen
 - C Water and oxygen
 - D carbon dioxide and glucose
- The immediate end-products of photosynthesis.

32.

- A Parasitic nutrition
 - B Holozoic nutrition.
 - C Saprophytic nutrition.
 - D Holophytic nutrition.
- Involves extracellular digestion.

33.

- A Biological control
 - B Chemical control
 - C Vector control.
 - D Population control
- The Elimination of harmful organisms using other living organisms.

34.

- A Carbon monoxide
 - B Sulphur dioxide
 - C Carbon dioxide
 - D Nitrogen dioxide
- Its large proportion in the atmosphere causes greenhouse effect.

35.

- A Community
 - B Ecosystem
 - C Population
 - D Species
- All the living organisms in a locality.

36.

- A Photosynthesis
 - B Digestion
 - C Decay
 - D Deamination
- Adds carbon dioxide into the atmosphere.

37.

- A Erosion
 - B Leaching
 - C Drainage
 - D Eutrophication
- The washing down of nutrients from top soil to sub soil.

38.

- A Presence of pyrenoids
 - B Presence of starch
 - C Presence of chlorophyll
 - D Presence of cell wall
- The reason why spirogyra is autotrophic.

39.

- A Lettuce → grasshopper → hawk → chicken.
 - B Lettuce → hawk → chicken → grasshopper.
 - C Lettuce → grasshopper → chicken → hawk.
 - D Lettuce → chicken → hawk → grasshopper.
- Represents the correct flow of energy in a locality.

40.

- A Starch solution
 - B Egg white
 - C Bean extract
 - D Glucose solution
- Will produce a brick red precipitate when tested with Benedict's solution.

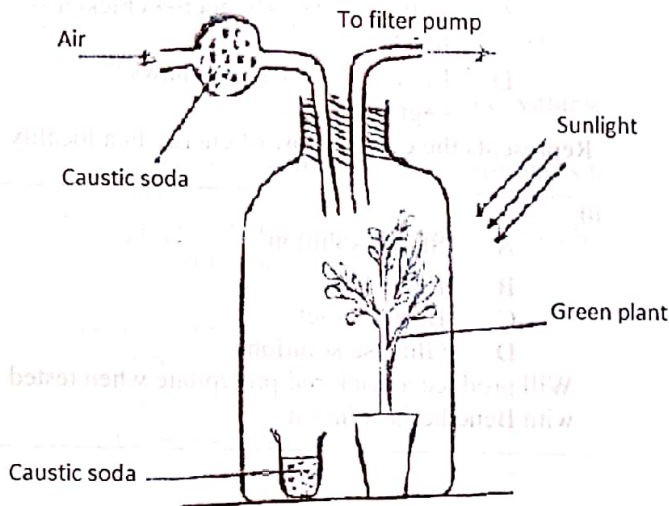
SECTION VI

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. The set up below was used as a control experiment to show that carbon dioxide is necessary for photosynthesis.



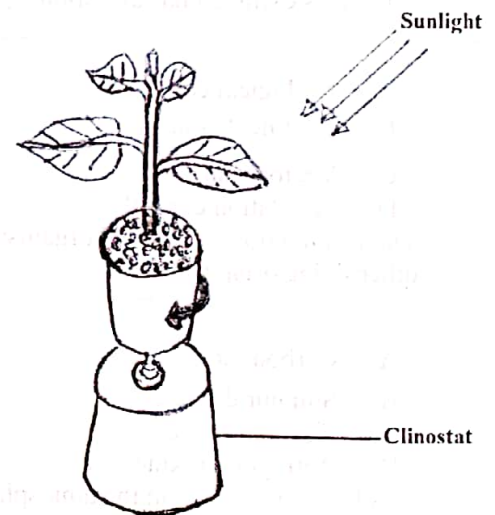
The caustic soda in the setup is to

- A Produce carbon dioxide
 - B Absorb carbon dioxide
 - C Produce oxygen
 - D Absorb oxygen
42. Fish suffocate out of water. This is due to
- A More carbon dioxide on land.
 - B Less oxygen on land than in water.
 - C High temperatures on land.
 - D Gills not absorbing oxygen from air.
43. In testing a leaf for the presence of starch, the leaf is boiled in alcohol for 5 minutes to
- A Burst starch grains.
 - B Soften the leaf.
 - C Remove chlorophyll.
 - D Harden the leaf.

44. In setting up a potometer, it is important to cut and mount the leafy shoot under water so as to
- A Prevent the entry of air bubbles into the xylem.
 - B Prevent water flowing backwards in the shoot.
 - C Ensure sufficient supply of water to the shoot.
 - D Prevent wilting of the shoot.

45. What is the probability that a couple with genotypes BO and AB will have a child of blood group B?
- A $\frac{1}{4}$
 - B $\frac{3}{4}$
 - C 0
 - D $\frac{1}{2}$

46.



The bean seedling placed on a rotating clinostat in the diagram grows straight upwards because of

- A High concentration of auxin on the illuminated side.
 - B Even distribution of auxin.
 - C High concentration of auxin on darker side.
 - D High light intensity.
47. The terminal bud of a tomato plant was cut off. Which of the following would have been observed?
- A Wilting of the plant
 - B Transpiration stopped
 - C Growth stopped
 - D Fast growth of axillary buds

48. Plants always occur at the first trophic level in food chains. This is because
- A Plants were the first organisms on earth.
 - B Plants are found all over the world.
 - C Plants convert solar energy into chemical energy.
 - D Plants are saprophytic.
-

49. Lime water turns milky when exhaled air is bubbled through it. This indicates that exhaled air
- A Contains oxygen.
 - B Contains carbon monoxide.
 - C Contains nitrogen oxide.
 - D Contains carbon dioxide.
-

50. Exposed palm wine loses its sweetness after several hours. This is due to
- A Anaerobic respiration by yeast.
 - B Conversion of sugar to starch.
 - C Evaporation of the wine.
 - D Anaerobic respiration by bacteria.

STOP

GO BACK AND CHECK YOUR WORK