

SC 5041
WASSCE (SC) 2021
BIOLOGY 1
Objective Test
50 minutes

1

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Name:

Index Number:

THE WEST AFRICAN EXAMINATIONS COUNCIL

West African Senior School Certificate Examination (WASSCE) for School Candidates, 2021

SC 2021

BIOLOGY 1

50 minutes

OBJECTIVE TEST

[50 marks]

Do not open this booklet until you are told to do so. While you are waiting, write your name and index number in the spaces provided at the top right-hand corner of this booklet and thereafter, read the following instructions carefully.

- Use HB pencil throughout.
- If you have got a blank answer sheet, complete its top section as follows.
 - In the space marked *Name*, write in capital letters, your surname followed by your other names.
 - In the spaces marked *Examination, Year, Subject* and *Paper*, write 'WASSCE (SC)', '2021', 'BIOLOGY' and '1' respectively.
 - In the box marked *Index Number*, write your index number vertically in the spaces on the left-hand side. There are numbered spaces in line with each digit. Shade carefully the space with the same number as each digit.
 - In the box marked *Paper Code*, write the digits 504113 in the spaces on the left-hand side. Shade the corresponding numbered spaces in the same way as for your index number.
 - In the box marked *Sex*, shade the space marked M if you are male, or F if you are female.
- If you have got a pre-printed answer sheet, check that the details are correctly printed, as described in 2 above. In the boxes marked *Index Number, Paper Code* and *Sex*, reshade each of the shaded spaces.
- An example is given below. This is for a male candidate whose name is Chinedu Oladapo DIKKO, whose index number is 4251102068 and who is offering Biology 1.

THE WEST AFRICAN EXAMINATIONS COUNCIL

PRINT IN BLOCK LETTERS

Name: DIKKO CHINEDU OLADAPO Examination: WASSCE (SC) Year: 2021
Surname Other Names

Subject: BIOLOGY Paper: 1

INDEX NUMBER	
4	0 1 2 3 4 5 6 7 8 9
2	0 1 2 3 4 5 6 7 8 9
5	0 1 2 3 4 5 6 7 8 9
1	0 1 2 3 4 5 6 7 8 9
1	0 1 2 3 4 5 6 7 8 9
0	0 1 2 3 4 5 6 7 8 9
2	0 1 2 3 4 5 6 7 8 9
0	0 1 2 3 4 5 6 7 8 9
6	0 1 2 3 4 5 6 7 8 9
8	0 1 2 3 4 5 6 7 8 9

For Supervisors only.
If candidate is absent shade this space:

PAPER CODE	
5	0 1 2 3 4 5 6 7 8 9
0	0 1 2 3 4 5 6 7 8 9
4	0 1 2 3 4 5 6 7 8 9
1	0 1 2 3 4 5 6 7 8 9
1	0 1 2 3 4 5 6 7 8 9
3	0 1 2 3 4 5 6 7 8 9

SEX
Indicate your sex by shading the space marked M (for Male) or F (for Female) in this box: M <input type="checkbox"/> F <input type="checkbox"/>

INSTRUCTIONS TO CANDIDATES

- Use grade HB pencil throughout.
- Answer each question by choosing one letter and shading it like this: [A] [B] [C]
- Erase completely any answer(s) you wish to change.
- Leave extra spaces blank if the answer spaces provided are more than you need.
- Do not make any markings across the heavy black marks at the right-hand edge of your answer sheet.

Answer all the questions.

Each question is followed by four options lettered A to D. Find the correct option for each question and shade in pencil on your answer sheet, the answer space which bears the same letter as the option you have chosen. Give only one answer to each question. An example is given below.

Which part of the gill of fish is involved in gaseous exchange?

- A. Gill slits
- B. Gill bars
- C. Gill covers
- D. Gill filaments

The correct answer is Gill filaments, which is lettered D and therefore answer space D would be shaded.

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

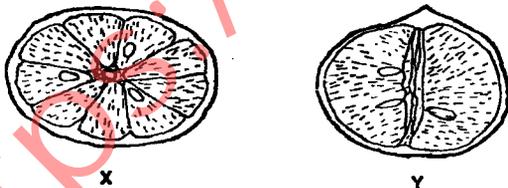
Think carefully before you shade the answer spaces; erase completely any answer(s) you wish to change.

Do all rough work on this question paper.

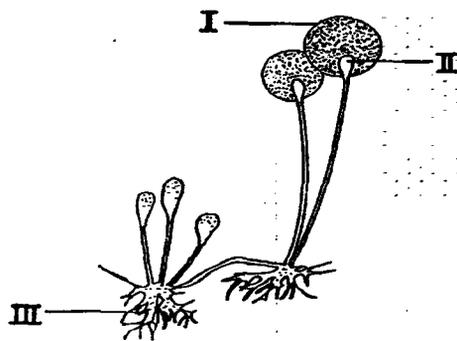
Now answer the following questions.

1. Which of the following organelles is common to both plant and animal cells?
 - A. Cellulose cell wall
 - B. Chlorophyll
 - C. Cell membrane
 - D. Large vacuole
3. The fruit that has the illustrated sections is a
 - A. hesperidium.
 - B. capsule.
 - C. drupe.
 - D. cypsela.

The diagrams below are illustrations of different sections of a particular fruit. Study them and answer questions 2 and 3.



2. The sections in X and Y respectively, are
 - A. longitudinal and transverse.
 - B. transverse and longitudinal.
 - C. cross and transverse.
 - D. transverse and cross.



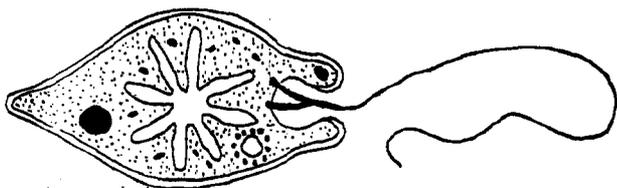
The diagram below is an illustration of a fungus. Study it and answer questions 4 to 6.

4. The structure labelled I is associated with
 - A. sexual reproduction.
 - B. asexual reproduction.
 - C. bud formation.
 - D. gamete formation.

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5. The structure labelled **II** is the
- spore.
 - stolon.
 - columella.
 - sporangium.
6. Which of the following statements about the structure labelled **III** is correct? It
- secretes digestive enzymes into the substrate
 - absorbs mineral salts from the soil
 - forms the root hairs of the organism
 - develops into stolon

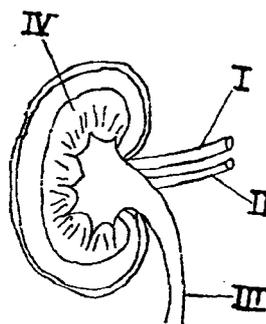
The diagram below is an illustration of a living organism. Study it and answer questions 7 and 8.



7. The level of organization of the organism is
- tissue.
 - cell.
 - organ.
 - system.
8. The organism belongs to the Phylum
- Rhizopoda.
 - Ciliophora.
 - Euglenophyta.
 - Rhodophyta.
9. A plant cell placed in a solution with a higher water potential will
- expand and then shrink.
 - enlarge and become turgid.
 - expand and then burst.
 - decrease in size and become flaccid.

10. Offspring formed by sexual reproduction exhibit more variation than those formed by asexual reproduction because
- greater amount of *DNA* is involved in sexual reproduction.
 - gametes of parents have different genetic composition.
 - genetic materials come from parents of two different species.
 - sexual reproduction is a lengthy process.
11. *Radius and ulna* are bones of the
- pectoral girdle.
 - upper arm.
 - pelvic girdle.
 - lower arm.
12. The blood vessel which carries blood from the alimentary canal to the liver is the
- hepatic artery.
 - hepatic vein.
 - hepatic portal vein.
 - mesenteric artery.

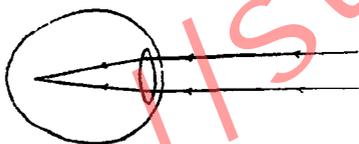
The diagram below is an illustration of the longitudinal section of a mammalian organ. Study it and answer questions 13 and 14.



13. Which of the labelled parts is the cortex?
- I
 - II
 - III
 - IV

14. What is the **main** function of the organ?
- Excretion
 - Respiration
 - Reproduction
 - Locomotion
15. *Detoxification* of urea takes place in the
- pancreas.
 - heart.
 - liver.
 - testes.
16. Which of the following hormones is suddenly secreted into the bloodstream of a frightened person?
- Insulin
 - Adrenaline
 - Thyroxine
 - Parathormone
17. The temperature control centre in mammals is located in the
- skin.
 - hypothalamus.
 - pituitary gland.
 - adrenal gland.

The diagram below is an illustration of a type of eye defect in humans. *Study it and answer questions 18 and 19.*



18. The eye defect illustrated in the diagram is
- hypermetropia.
 - astigmatism.
 - presbyopia.
 - myopia.
19. The eye defect can be corrected by the use of
- convex lens.
 - concave lens.
 - bifocal lens.
 - cylindrical lens.

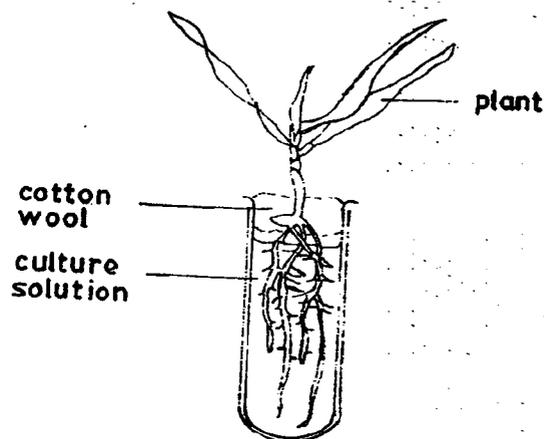
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20. How many gametes are produced in the pollen grain of a flowering plant before fertilization?
- One
 - Two
 - Three
 - Four
21. Which of the following organisms does **not** undergo incomplete metamorphosis?
- Locust
 - Grasshopper
 - Butterfly
 - Cockroach
22. An enzyme reaction may begin to decline when
- the optimum temperature is attained.
 - the pH of the medium is altered.
 - there is an increase in substrate concentration.
 - the atmospheric pressure is altered.

The diagram below is an illustration of the growth of a plant in a water culture. After a few days, the solution turned green and the plant died. *Use it to answer questions 23 and 24.*



23. What precaution should have been taken to prevent the solution from turning green?
- Use a non-green plant for the experiment
 - Aerate the solution daily
 - Cover the culture vessel with opaque paper
 - Keep cotton wool around the seedling to make it dry

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ESSAY

1 hour 40 minutes

**SECTION A
FOR ALL CANDIDATES**

Answer **two** questions only from this Section

1. A sample of human blood was put in a test tube and allowed to spin in centrifuge. The components of the blood sample were **clearly** separated.
- (a) List the **four main** components of blood that would be in the test tube [4 marks]
- (b) Name the component of the blood that
- i. Would form the top layer in the test tube
 - ii. Destroys pathogens
 - iii. is biconcave in shape
 - iv. would be relatively low in a haemophilic condition;
 - v. is produce in the bone marrow
 - vi. is a thrombocyte
 - vii. is nucleated
- [7 marks]
- (c) Mention **three** chemical substance transported by the blood component name in (b)(i) [3 marks]
- (d) List **four** disease associated with blood [5 marks]
- (e) Explain **briefly** why a diseases of blood could be dangerous [2 marks]
2. (a) What is *dentition in animals*? [2 marks]
- (b) Describe **briefly** the generalized structure of a tooth in animals. [6 marks]
- (c) List **three** food substances that plants manufacture from glucose. [3 mark]
- (d) Make a diagram 6cm to 8cm long of an experimental set-up to show that oxygen is produce during photosynthesis. [9 marks]
3. (a) Complete the table below by placing each of the following organism under the appropriate heading.
Algae, Bacteria, Dog, Water Lettuce, Tadpole, Cat, Lemna, Waterleaf, Mucur, Mushroom

<i>Decomposer</i>	<i>Producer</i>	<i>Consumer</i>

- [10 marks]
- (b) i. Name **four** product of decomposition. [4 marks]
- ii. Mention **three** roles of decomposer on a refuse dump. [3 marks]
- (c) List **three** mammals found in a refuse dump which would not be affected by the **medium** of decomposers. [3 marks]

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