PC 5041
WASSCE (PC1) 2020
BIOLOGY 1
Objective Test
50 minutes

1

Name:.....

Index Number:.....

THE WEST AFRICAN EXAMINATIONS COUNCIL
West African Senior School Certificate Examination (WASSCE)
for Private Candidates, 2020 - First Series

(PC1) 2020 | 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.*

1. Use **HB pencil** throughout.
2. If you have got a blank answer sheet, complete its top section as follows.
   (a) In the space marked *Name*, write in capital letters your **surname** followed by your **other names**.
   (b) In the spaces marked *Examination, Year, Subject* and *Paper,* write **'WASSCE (PC1)'**, **'2020'**, **'BIOLOGY'** and **'1'** respectively.
   (c) 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.
   (d) 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.
   (e) In the box marked *Sex,* shade the space marked **M** if you are **male**, or **F** if you are **female**.
3. 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.
4. An example is given below. This is for a **male** candidate, whose **name** is **Chinedu Oladapo DIKKO**, whose **index number** is **5251102068** and who is offering **Biology 1**.

THE WEST AFRICAN EXAMINATIONS COUNCIL

PRINT IN BLOCK LETTERS

Name: DIKKO (Surname) CHINEDU OLADAPO (Other Names) Examination: WASSCE (PC1) Year: 2020

Subject: BIOLOGY Paper: 1

INDEX NUMBER
5
2
5
1
1
0
2
0
6
8

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

PAPER CODE
5
0
4
1
1
3

SEX

Indicate your sex by shading the space marked M (for Male) or F (for Female) in this box: M ■ F ☐

INSTRUCTIONS TO CANDIDATES
1. Use grade **HB pencil** throughout.
2. Answer each question by choosing one letter and shading it like this: [A] [B] [C] ■
3. Erase completely any answer(s) you wish to change.
4. Leave extra spaces blank if the answer spaces provided are more than you need.
5. 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] [■]

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

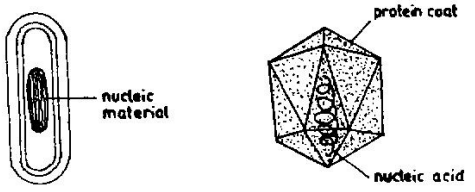
Do **all** *rough work on this question paper.*

Now answer the following questions.

1. Which of the following characteristics is that of a plant?

A. Absence of chlorophyll
B. Immediate response to stimuli
C. Carbohydrate is stored as glycogen
D. Presence of large vacuoles in cells

The diagrams below are illustrations of biological structures. *Study them and answer questions* **2** *and* **3**.



A B

2. Which of the following statements is **correct**?

A. **B** needs **A** and other living things to reproduce
B. **A** and **B** cannot exist together in a parasitic relationship
C. **A** needs **B** to function properly in its environment
D. The relationship between **A** and **B** is usually mutual

3. The strand of nucleic acid in structure **B** is

A. injected into a host cell during feeding.
B. either *DNA* or *RNA*.
C. enclosed by the nucleus.
D. combined molecules of *DNA* and *RNA*.

The information below is a list of features possessed by organisms. *Use it to answer questions* **4** *to* **6**.

I - Segmented body
II - Coelom
III - Seta
IV - Chitin

4. The feature **not** possessed by Arthropods is

A. **I**.
B. **II**.
C. **III**.
D. **IV**.

5. The feature **common** to **both** Arthropods and Annelids is

   A. **I.**
   B. **II.**
   C. **III.**
   D. **IV.**

6. The feature possessed by Annelids **only** is

   A. **I.**
   B. **II.**
   C. **III.**
   D. **IV.**

7. The **least** complex of the following invertebrates is the

   A. Coelenterate
   B. Annelid
   C. Mollusc
   D. Arthropod

8. Which of the following traits is **not** a characteristic of organisms that exist as colony?

   A. There is division of labour
   B. Identical cells form a mass
   C. All cells are physiologically independent
   D. Cells are linked by cytoplasmic material

9. The organelle involved in tissue respiration is the

   A. endoplasmic reticulum.
   B. ribosome.
   C. Golgi body.
   D. mitochondrion.

10. Lactic acid is produced in the human body when there is

    A. lack of exercise.
    B. presence of citric acid.
    C. absence of oxygen.
    D. lack of lipid.

11. The flow of carbon dioxide and water in and out of the mesophyll layer of a leaf is controlled by

    A. chloroplast.
    B. lenticels.
    C. air spaces.
    D. guard cell.

12. A plant in a potometer was placed under a rotating fan in a Biology laboratory. Which of the following factors would **greatly** affect transpiration?

    A. Temperature
    B. Humidity
    C. Wind
    D. Light

13. The part of the mammalian respiratory tract located after the pharynx is the

    A. bronchus.
    B. bronchiole.
    C. larynx.
    D. trachiole.

14. The excretory organ in insects is the

    A. kidney.
    B. malpighian tubule.
    C. flame cell.
    D. skin.

15. Some students spent an hour working on the school farm on a very hot day. At the end of the activity, they drank lots of water because

    A. they had used up the water in their body to release energy.
    B. the water in the body had been used to strengthen their muscles.
    C. they needed more water to close their sweat pores.
    D. their body had used up its water to keep the body cool.

16. Which of the following glands is called the master gland?

A. Parathyroid gland
B. Adrenal gland
C. Thyroid gland
D. Pituitary gland

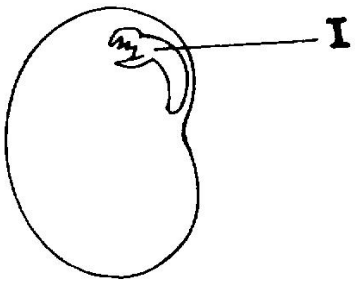
17. The neurone is the functional unit of the

A. kidney.
B. heart.
C. brain.
D. liver.

18. The sensory cells found on the upper surface of the tongue are

A. ampullae.
B. nerve cells.
C. taste buds.
D. somatic cells.

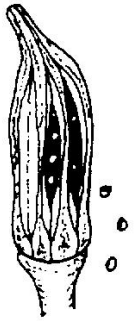
The diagram below is an illustration of a germinating seed. *Study it and answer question* **19**.



19. The part labelled **I** is the

A. shoot.
B. plumule.
C. radicle.
D. hypocotyl.

The diagram below is an illustration of a fruit. *Study it and answer question* **20**.



20. What is the mode of dispersal of its seeds?

A. Animal
B. Water
C. Explosive mechanism
D. Wind mechanism

21. The food substance that is lacking in the diet of a person who passes hard faeces is

A. starch.
B. roughage.
C. protein.
D. fats.

22. Which of the following reagents is used to test for starch?

A. Millon's reagent
B. Benedict's solution
C. Iodine solution
D. Fehling's solution

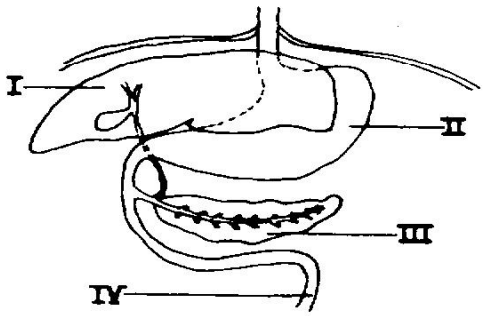
23. The first step in the process of photosynthesis is the

A. activation of chlorophyll.
B. formation of water.
C. reduction of carbon dioxide.
D. formation of sugar.

24. Which of the following factors does **not** affect the rate of photosynthesis?

A. Light intensity
B. Oxygen concentration
C. Temperature
D. Concentration of carbon dioxide

The diagram below is an illustration of parts of the human digestive system. *Study it and answer questions* **25** *and* **26**.



25. The part that secretes digestive juice and hydrochloric acid is

A. **I**.
B. **II**.
C. **III**.
D. **IV**.

26. The part labelled **III** is the

A. pancreas.
B. stomach.
C. liver.
D. ileum.

27. Secchi disc is used to measure

A. light intensity.
B. turbidity.
C. water current.
D. salinity.

28. A population with a relatively large population of reproductive adults will be

A. increasing.
B. less crowded.
C. decreasing rapidly.
D. unchanged.

29. An ecological instrument used for the collection of small insects from the soil, leaf litter and crevices is

A. pooter.
B. quadrat.
C. sweep net.
D. drag net.

The processes below occur during energy transformation in the biosphere. *Study them and answer questions* **30** *and* **31**.

I- Heat energy is lost from metabolism to surrounding air.
II- Energy passes to decomposers.
III- Energy is transferred to the next higher level in a food chain.
IV- Energy is passed by conduction to clothing and other objects.

30. Which of the processes **directly** leads to the transfer of useful energy within a biological system?

A. **I** only
B. **II** and **III** only
C. **I** and **III** only
D. **I** and **IV** only

31. In which of the processes will energy flow to a fungus?

A. **II** only
B. **I** and **II** only
C. **III** and **IV** only
D. **I**, **II** and **III** only

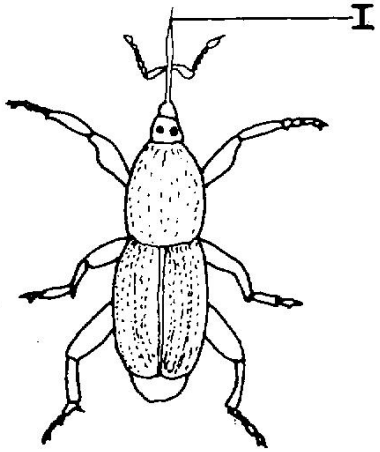
32. Recycling of materials in an ecosystem is **largely** due to the activities of

A. decomposers.
B. primary consumers.
C. producers.
D. secondary consumers.

33. In which feeding relationship does **one** organism benefit while the other is **not** affected?

A. Mutualism
B. Commensalism
C. Parasitism
D. Saprophytism

The diagram below is an illustration of an organism. *Study it and answer questions* **34** *to* **36.**



34. The illustrated organism is a

A. butterfly.
B. grasshopper.
C. weevil.
D. beetle.

35. The economic importance of the organism is that it

A. destroys leaves.
B. pollinates flowers.
C. transmits diseases.
D. damages grains.

36. The function of the part labelled **I** is that it is used to

A. detect vibrations in the environment.
B. attract mate.
C. bore holes in seeds.
D. secrete silk.

37. Endangered species are organisms that ought to be

A. hunted.
B. killed.
C. poached.
D. protected.

38. Which of the following substances is **not** a renewable natural resource?

A. Soil
B. Oil
C. Water
D. Plant

39. A measure which is **not** useful in forest conservation is

A. combating and preventing diseases.
B. reforestation of depleted trees.
C. using charcoal for domestic purposes.
D. preventing and controlling accidental forest fires.

40. In living organisms, males and females can always be distinguished by different

A. sizes.
B. number of muscles.
C. sexes.
D. body colours.

41. Which of the following statements about mutation is **correct**?

A. The genotype is not affected
B. The phenotype is not affected
C. It cannot be induced by artificial means
D. There is a change in the genotype of a cell

42. Which of the following forms of variation will give a normal distribution?

A. Blood group
B. Tongue rolling
C. Body weights
D. Fingerprints

43. The part of the cell that stores nucleic acid is

A. nucleolus.
B. nuclear membrane.
C. chromosome.
D. nuclear pore.

44. The F_1 generation of a cross between a red flower and a white flower of the same species were all red because the gene for the

A. white colour did not segregate.
B. red colour was dominant.
C. white colour was dominant.
D. red colour was recessive.

45. An abnormal number of chromosomes could result during meiosis because of

A. non-disjunction.
B. recombination.
C. inversion.
D. translocation.

46. The probability of a carrier mother and a normal father having a haemophiliac male is

A. 25 %.
B. 50 %.
C. 75 %.
D. 100 %.

47. The gene for sex-linked characters is carried by

A. *X* chromosome.
B. *Y* chromosome.
C. *X* and *Y* chromosomes.
D. autosomes.

48. Insects are classified as social insects when they

A. possess three pairs of jointed appendages.
B. have different body forms.
C. live in an organized community.
D. all live in a termitarium.

49. A honeybee communicates with others after locating a source of food by

A. dancing.
B. stinging.
C. instinct.
D. flare.

50. Which of the following is **not** an evidence of evolution?

A. Fossil records
B. Comparative embryology
C. Polymorphism
D. Comparative anatomy