# S.2 BIOLOGY ASSESSMENT TEST

TIME: 90 MINUTES INSTRUCTIONS: Attempt all questions.

## SECTION A

**1.** The Biology comes from two Greek words "Bio" and "logos" literally meaning ……and ……respectively

A. Life and knowledge
B. Study and life
C. Knowledge and life
D. life and study

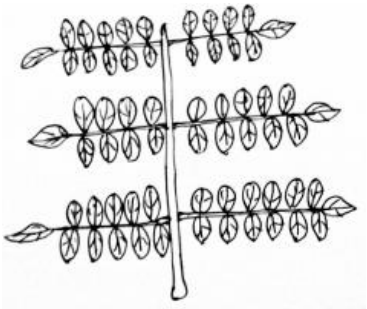
2. A branch of biology which deals with the study of interactions between organisms and their environment is?

A. Zoology B. Botany C. Ecology D. Mammology

3. Which two characteristics of living things are exhibited when an individual dances accurately to the tune of a very nice song?

A. Growth and feeding.
B. Movement and excretion
C. Irritability and movement.
D. Irritability and Nutrition

4. The type of compound leaf shown is figure 3 is



A. Compound digitate
B. Compound Bipinnate
C. Compound trifoliate
D. Compound pinnate

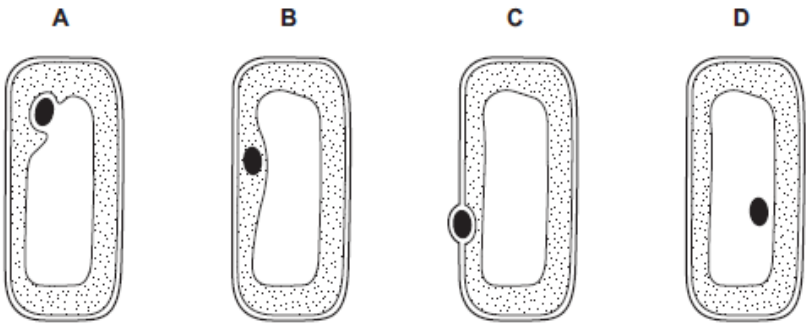
5. Which one of the following expressions can be used to determine the magnification power of a microscope? The magnification of the eye piece.

A. X the magnification of objective lens.
B. + the magnification of objective lens.
C. ÷ the magnification of objective lens.
D. – the magnification of objective lens.

6. If a microscope eye piece has a number X10 written on it and objectives lens has a number X45 written on it, the magnification

A. x4.5 B. x10 C. x45 D. x450

7. Which cell shows the accurate position of the nucleus?




8. Which one of the following is the correct order in the level of organization of an organism?

A. cells ⟶ organs ⟶ tissues ⟶ systems
B. tissue ⟶ organs ⟶ systems ⟶ cells
C. cells ⟶ tissues ⟶ organs ⟶ systems
D. organs ⟶ tissues ⟶ systems ⟶ cells

9. Which of the following is the correct order when describing a biological experiment?
   A. Apparatus and materials, aim, conclusion, procedure, observation,
   B. Aim, apparatus and materials, observation, procedure and conclusion.
   C. Aim, apparatus and materials, procedure, observation, conclusion.
   D. Aim, apparatus and materials, procedure, conclusion, observation.
10. Which one of the following cell structures is possessed by both animal and plant cells?
   A. Chloroplast C. Flagellum
   B. Cell wall D. Cell membrane
11. The following is a dichotomous key of invertebrates:

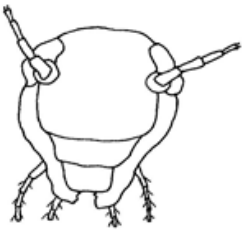
| | | |
|---|---|---|
| 1 | (a) | Has 8 legs ..... W |
| | (b) | Has 6 legs ..... 2 |
| 2 | (a) | Has long antennae ..... X |
| | (b) | Has short antennae ..... 3 |
| 3 | (a) | Has proboscis ..... Y |
| | (b) | Has mandibles ..... Z |

   Which one of the organisms is a fly?
   A. W B. X C. Y D. Z
12. To which one of the following groups of plants do mosses belong?
   A. Pteridophytes C. Angiosperms
   B. Bryophytes D. Conifers
13. Which one of the following classes has the highest number of species?
   A. Crustacea C. Insect
   B. Arachnida D. Myriapoda
14. Which of the following vegetative plants would appear earliest in a rocky habitat?
   A. Moss B. Lichens C. Algae D. Ferns
15. The following are characteristics of insecta:
   *(i) They undergo complete metamorphosis*
   *(ii) They have 1 or 2 pairs of wings*
   *(iii) They have 3 pairs of jointed legs*
   *(iv) Their bodies are divided into 3 main parts*
   *(v) They possess exoskeletons*
   Which of them are common to all insects?
   A. (iii), (iv) and (v) B. (i), (ii) and (iii) C. (i), (iii) and (v) D. (iii), (ii) and (v)
16. Which one of the following is a difference between an adult and a newly hatched nymph of a cockroach?

| | **Adult** | **Nymph** |
|---|---|---|
| A | Has three pairs of legs | Has no legs |
| B | Has compound eyes | Has no eyes |
| C | Has wings | Has no wings |
| D | Has a pair of antennae | Has no antennae |

17. Which one of the following is the correct order of arrangement from the smallest to the largest group of organisms?
    A. Species, order, genus, class, phylum.
    B. Species, class, order, genus, phylum
    C. Species, class, order, genus, phylum.
    D. Species, genus, order, class, phylum.

18. The figure below shows a head of an insect



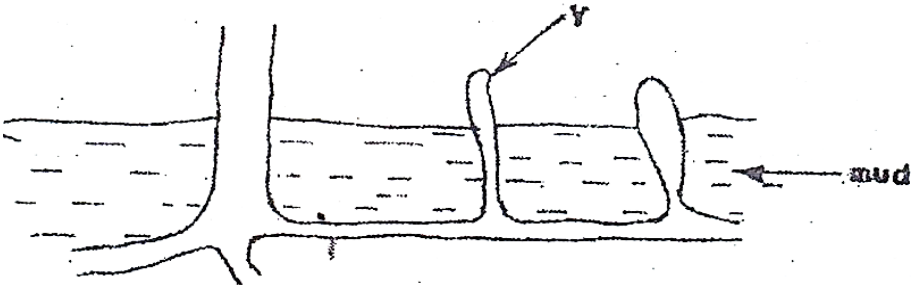
From which view was the specimen taken?

A. Posterior view
B. Dorsal view
C. Anterior view
D. Ventral view

19. Which activity takes place during the pupa stage in the life cycle of an insect?
    A. Hibernation
    B. Feeding
    C. Organ formation
    D. Aestivation

20. Which one of the following insects are not vectors?
    A. Tsetse flies B. Mosquitoes C. Cockroaches D. Termites

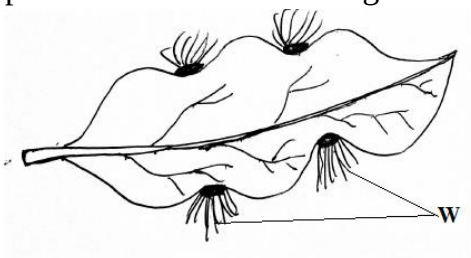
21.




The root modification shown by Y above is for
A. Storage B. Excretion C. Breathing D. Extra support

22. The following are underground stems Except
    A. Rhizome B. Corm C. Bulb D. Sucker

23. The type of roots labeled W in figure 1 of a Byrophyllum are called




A. Prop roots
B. Adventitious roots
C. Lateral roots
D. Clasping roots

24. The figure below is a cotton leaf. Which type of leaf is shown below

A. Simple digitate
B. Simple pinnate
C. Compound pinnate
D. Compound pinnate

25. Which type of fruit is shown in the cross section of figure 1?

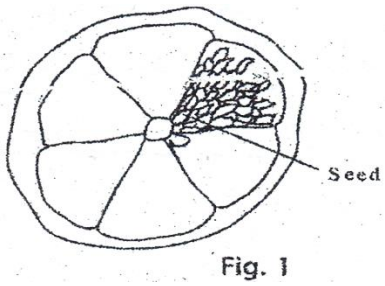


Fig. 1

A. Berry
B. Drupe
C. Caryopsis
D. Achene

26. Jackfruit is an example of
A. Compound fruits
B. Multiple fruits
C. Aggregate fruits
D. Simple fruits

27. A soil sample was heated at $100^0$C to a constant weight. Which component of the soil was being investigated?
A. Organic matter B. Air C. Microorganisms. D. Water.

28. Figure 4 represents part of the nitrogen cycle.

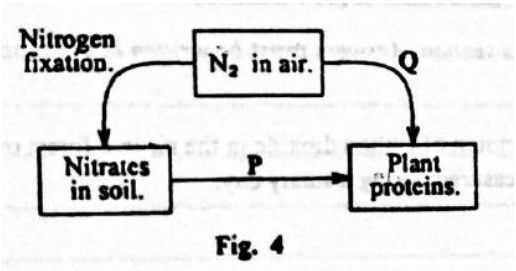
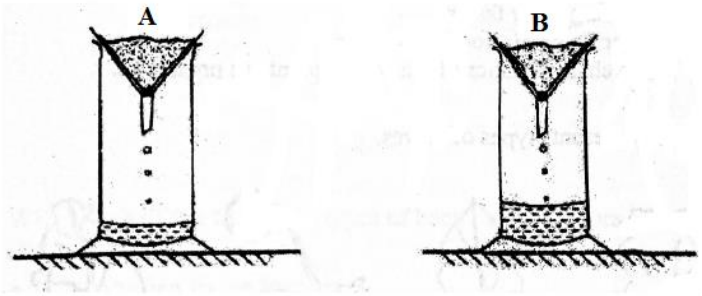


Fig. 4

The processes at P and Q are…….respectively.
A. Decaying and nitrification
B. Absorption and nitrogen fixation
C. Decomposition and denitrification
D. Death and putrefaction

29. Nitrogen in animal tissues is returned to the atmosphere by
A. Respiration
B. Defecation
C. Bacterial action
D. Urination

30. An experiment was set up in figure 4 and left to stand for sometime




A. Water capillarity and amount of humus
B. Amount of air and humus in the soil
C. Soil particle size and air in the soil
D. Water drainage and retention of the soil.

# SECTION B

31. Malaria is one of the leading killer diseases in Uganda today.

(a) Name the organism that causes malaria. **(01 mark)**

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(b) Explain why malaria is spread by female anopheles mosquitoes and not the male mosquitoes. **(02 marks)**

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……
……

(c) Give four ways how the spread of malaria can be controlled. **(04 marks)**

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……
……
……

(d) List three symptoms of malaria. **(03 marks)**

……
……
……

32. Give **five** differences between:

(a) Monocotyledonous plants and dicotyledonous plants. **(05 marks)**

| **MONOCOTYLEDONOUS PLANTS** | **DICOTYLEDONOUS PLANTS** |
|---|---|
| | |
| | |
| | |
| | |
| | |

(b) Insecta and arachnida. **(05 marks)**

| **INSECTA** | **ARACHNIDA** |
|---|---|
| | |
| | |
| | |
| | |
| | |

33. Define the terms:

(i) Soil. **(02 marks)**

……..……

……..…

(ii) Soil profile. **(02 marks)**

……

……..……

(b) In the space provided draw an illustration of a generalized soil profile. **(04 marks)**

(c) Give two characteristics of the topmost horizon. **(02 marks)**

……

……

## SECTION C (15 MARKS)

*Answer **one** question only*

34. (a) Explain the features of a cockroach that enable it to survive in its habitat. **(10 marks)**

(b) Draw a well labeled diagram of the hind limb of a cockroach. **(05 marks)**

35. (a) Describe an experiment to determine the percentage of air in a soil sample. **(09 marks)**

(b) In such an experiment, the readings taken were as follows:

Volume of water in the measuring cylinder = 220 $cm^3$

Volume of water plus volume of soil = 270 $cm^3$

Volume of water plus soil after stirring = 262 $cm^3$

Calculate the percentage of air in the soil? **(06 marks)**

## END!!!!

***"You will experience a painful sharpening from time to time, but this is required if you are to become a better pencil".***