

Name: School:

Biology
S.2
2019
2½ hours

WAKISO- KALANGALA SESEMAT REGION ASSESSMENT
SENIOR 2 BIOLOGY 2019

Time: 2hour 30minutes

INSTRUCTIONS:

- Answer **all** questions in section A and B.
- **Section A:** Write the letter corresponding to the right answer in the box on the right hand side of each question.
- **Section B:** Write your answers for this section in the spaces provided.
- **Section C:** Choose two questions and write your answers on a separate paper.

FOR EXAMINERS' USE ONLY

SECTION	MARKS
A	
B	
C	Qn;
	Qn;
TOTAL	

SECTION A (30 Marks)

Answer all questions in this section

1. When a student mixed 50cm^3 of dry soil with 40cm^3 water and stirred the mixture, he expected a total volume of 90cm^3 but the final volume was 80cm^3 . Explain the observed results by the student.

A. Some water was used to wet the soil

B. The lost in volume is volume of air displaced by water.

C. The student did not read the volume value properly.

D. Some water evaporated during mixing.

2. Why is the leaf boiled in ethanol during the experiment to test for presence of starch in a leaf?

A. To kill protoplasm of the leaf

B. To remove the chlorophyll in the leaf

C. To make the leaf brittle

D. To soften the leaf

3. What is the advantage of a mammal being a heterodont?

A. The teeth are of different sizes and shapes.

B. The different sizes and types of teeth enable them to work on food in different ways.

C. Teeth of different sizes and shapes enable them to eat different kinds of food.

D. Teeth of different sizes and shapes enable them to eat one kind of food.

4. Why would it be necessary to include beans in crop rotation cycle? Beans.....

A. Are cover crops.

B. Improve water retention of the soil.

C. Restore nitrogen in the soil.

D. Increase humus content in the soil.

5. The following are parts of a seed:
 (i) Testa (ii) Plumule (iii) Radicle (iv) Micropyle (v) Cotyledon
 Which of these parts play a role of protecting the embryo?

A. (ii) and (iii)

B. (i) and (v)

C. (i) only

D. (v) only

6. A student drew the structure of an external wing of a cockroach and indicated the magnification as: X0.5. What does this mean?

A. The image is five times larger than the object.

B. The image is the same size as the object.

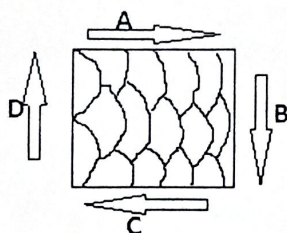
C. The image is half the size of the object.

D. The image is a half times larger than the object.

7. Which of the following carbohydrates are correctly classified?

	Monosaccharide	Disaccharide	Polysaccharide
A	Starch	Fructose	Lactose
B	Fructose	Starch	Lactose
C	Starch	Lactose	Fructose
D	Galactose	Sucrose	Starch

8. The figure 1 below shows a drawing of part of the skin of a bonny fish. Which arrow is pointing in the direction of the tail of the fish?


☐

9. Which of the following **least** determine the mode of dispersal of a fruit?

- A. Size of the fruit
- B. Colour of the fruit.
- C. Weight the fruit
- D. Shape of the fruit.

☐

10. If oil spilled on a fish pond why would fish die after a few days?

- A. Suffocation because oxygen supply was cut off.
- B. Failure to see because light supply was cut off.
- C. Poisoning because of fish drinking the oil during feeding.
- D. Failure to swim because of the thick oil.

☐

11. When a taxonomist uses the term *Lepido ptera* to refer to a butterfly, what levels of organization are being used?

- A. Class and Order
- B. Order and Family
- C. Genus and species
- D. Phylum and Class

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12. What are biodegradable materials?

- A. Materials that can burn
- B. Materials that form food for others
- C. Materials that do not undergo decomposition
- D. Materials that decompose

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13. If you have two fields each with the features shown in the table below:

Field	Location	Type of soil
X	Steep slope	Loam soil
Y	Flat land	Sandy soli

You realize that the harvests of both fields are not good. What measures would you take to increase the yields of each field?

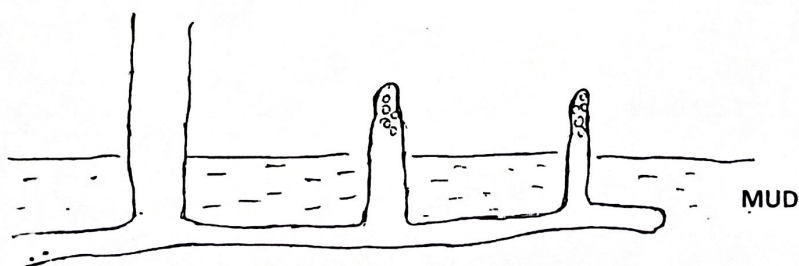
- A. Field X: Terracing and Field Y: Addition of compost manure
- B. Field X: Addition of compost manure and Field Y: Crop rotation
- C. Field X: Stripe cropping and Field Y: Crop rotation
- D. Field X: Terracing and Field Y: Stripe cropping

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14. Why is it wasteful to eat many eggs and a lot of meat on a daily basis?
- Proteins are body building foods and very little is required to build cells.
 - Excess protein cannot be stored in the body but changed to Carbohydrates for storage ☐
 - Proteins only repair broken down cells
 - Eggs and meat lack carbohydrates
15. Organisms M and R have some visible differences however they can freely inter breed and reproduce fertile off springs. M and R belong to the same...
- kingdom
 - family ☐
 - species.
 - group
16. The best description of the role of chlorophyll in green plants could be
- manufacturing food for the plant.
 - storing starch in the plant. ☐
 - reacting water and Carbon dioxide.
 - trapping light energy
17. A student heated Xg of fresh soil sample gently on an evaporating dish and the resulting mass of soil sample was Yg. The percentage of water in the soil sample is
- $\frac{(x-y)}{x} \times 100$
 - $\frac{(x+y)}{x} \times 100$ ☐
 - $\frac{(y-x)}{x} \times 100$
 - $(x - y) \times 100$
18. Some flowers are pollinated by insects at night. What attracts eg the moth to such flowers?
- The brightly coloured petals.
 - A lot of nectar in the flower ☐
 - The fragrant scent of the flower
 - Darkness of the night
19. We are discouraged from scattering polyethene bags (kavera) on the ground because they:
- change the colour of the soil
 - allow much water to go through them ☐
 - they decompose to add excess mineral salts to the soil.
 - obstruct water and roots of plants from reaching the deeper parts of the soil
20. How does the process of photosynthesis purify air around us?
- Oxygen is removed from the air to make food
 - Carbon dioxide is removed from the air ☐
 - Water moisture in the atmosphere is removed
 - Dust in the air rests on the leaves.

21. Why is it advisable to eat boiled but not deep fried eggs? ☐
- Boiling does not reduced the size of the egg
 - Deep frying makes the eggs brown in colour
 - Boiling leads to addition of water to the egg
 - Deep frying denatures the food nutrients.
22. Which of the following leads to biological weathering? ☐
- Action of acid rain on rocks
 - Action of heat on rock.
 - Action of running water on rocks.
 - Decomposition of plant and animal remains
23. Which of the following best describes the term biodiversity? ☐
- Organisms being the same
 - Living organisms of different kinds
 - Organisms behaving differently
 - Organisms living in different environments
24. Below are the optimum pH for four enzymes and their substrates. Which enzyme is pepsin? ☐
- | Enzyme | Substrate | pH |
|--------|-----------|----|
| A | Starch | 7 |
| B | Protein | 2 |
| C | Peptone | 8 |
| D | Lipid | 9 |
25. During a medical operation, a person's large intestine was removed. This person will not be able to ☐
- Digest fat
 - Produce vitamin D
 - Produce solid faeces
 - Absorb nutrients

26. Figure 2 below is of a modified root.



Which of the following features does not enable it to perform its function?

- they are spongy
 - they are swollen
 - presence of pores
 - they are aerial
- ☐

27. Which one of the following descriptions would you use to identify a compound leaf?
- A. Lamina completely divided into leaflets
 B. Margin well Serrated
 C. Lamina completely Entire
 D. Lobed lamina
28. The numerous micro villi lining the ileum is an adaptation to:
- A. Slow the movement of food along the alimentary canal.
 B. Increase the movement of food along the alimentary canal.
 C. Reduce the surface area over which digested food is absorbed.
 D. Increase the surface area over which digested food is absorbed
29. Which of the following is **not** true about amoeba?
- A. It has an organ for excretion.
 B. It is an organism
 C. Carries out extra-cellular digestion.
 D. Material exchange is by simple diffusion.
30. What would you do to a flower to artificially avoid self-pollination?
- A. Remove both stamen and pistil
 B. Remove the corolla
 C. Remove the pistil only
 D. Remove the stamen

SECTION B (40 Marks)

Answer all questions in this section

31. An experiment was carried out on two soil samples M and N. An equal volume of each soil sample was placed in funnels placed in the neck of two separate measuring cylinders. 100cm³ of water was poured in each soil sample at the same time. The time taken for water to stop dripping through each soil sample was noted as shown in the table below:

Time in minutes		0	1	2	4	6	8	10	12
Volume of water dripping out of the soil sample (cm ³)	M	0	10	18	26	30	32	33	33
	N	0	8	10	11	11.5	12	12	12

- (a) (i) What was the aim of the experiment? (01mark)

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- (ii) Why were equal volumes of water and soil used in the experiment? (01mark)

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- (b) Represent the information in the table above on a suitable graph. (12marks)

- (c) Using the graph, describe the drainage pattern in the two soil samples (02marks)

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- (d) Explain why at 10 minutes and above there was no more water draining out of the soil samples. (01 marks)

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- (e) (i) Basing the experiment's results outline two differences between the properties of soil samples M and N. (02 marks)

Soil sample M	Soil sample N

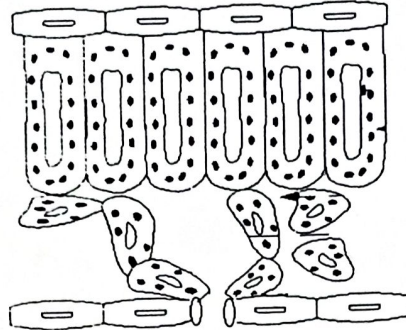
- (ii) With a reason suggest which soil sample would be better growing rich. (1 mark)

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32. The figure below shows the internal structure of a leaf. Study it and answer the questions below.



- (a) Using labelling lines, label on the figure above the following parts: (03marks)

- (i) The layer without stomata, and it reduces loss of water from the leaf as **R**
- (ii) The layer having cell richest in chloroplasts as **Y**
- (iii) The layer having air spaces as **Z**
- (iv) Part where air stored temporary as **S**
- (v) Part through which gases enter and leave the leaf as **T**
- (vi) Cells that control movement of gases in and out of leaf as **W**

- (b) Give three structural differences observed between layers **Y** and **Z** (03 marks)

	Layer Y	Layer Z
(i)		
(ii)		
(iii)		

- (c) Using evidence from the drawing describe how the internal structure of a leaf is suited for photosynthesis. (04 marks)

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33. (a) Define the natural process that leads to the formation of glucose from starch. (02 marks)

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- (b) Describe the following processes as applied in nutrition (03 marks)

(i) Hydrolysis:

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(ii) Condensation:

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(iii) Assimilation:

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- (c) Explain four reasons why the ileum is the region where absorption of digested food occurs (04 marks)

(i)

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(ii)

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(iii)

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(iv)

- (d) Apart from absorption of digested food name another role of the ileum in mammals. (01 mark)
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SECTION C (30 Marks)

Answer any two questions in this section

34. The Ministry of Health in Uganda has a programme on vectors and disease control in communities around Lake Regions. The on-going program is the distribution of chemically treated nets.
- (a) (i) Which vector and disease are controlled by nets? (02 marks)
 - (ii) Describe how the nets supplied by the Ministry of Health would control the spreading of the disease. (04 marks)
 - (b) Describe any other ways that can be carried out to prevent the spread of the above disease. (09 marks)
35. (a) Describe a balanced diet. (02 marks)
- (b) Why is it important for a person to feed on a balanced diet? (13 marks)
36. (a) Define the term 'seed dispersal'. (01 mark)
- (b) Convince your classmates that seed dispersal is useful in the life and success of a plant. (03 marks)
- (c) Using the following fruits, describe how the different dispersal agents play a role in their seed dispersal: Ripe orange, Tridax, Mature bean pod and Coconut. (11 marks)
37. (a) With help of a chemical equation, name the raw materials, form of energy used, product and by products of the process of photosynthesis? (04 marks)
- (b) Describe an experiment to show that Oxygen is given out during the process of Photosynthesis (11 marks)

END