

Learner's Name.....

Signature.....

553/1

**BIOLOGY**

**Paper 1**

**2024**

2 hrs.30mins

**Uganda Certificate of Education**

BIOLOGY

**Paper 1**

Theory

**2 HOURS: 30 MINS**

**INSTRUCTIONS TO CANDIDATES:**

- The paper consists of **seven** examination items. It has two section **A** and section **B**
- Section A has **three** compulsory items.
- Section B has two parts: I and II. Answer **one** item from each part.

Answer **five** items in all.

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## SECTION A

Answer **all** items in this section in the spaces provided.

### Item 1

Mrs. Kanyere is a good farmer who uses the knowledge she obtained from studying transport in plants to grow tomatoes for her home consumption as sauce and at times making juice. In the process of growing tomatoes, she prepares a nursery bed for growing the tomatoes to a certain stage but later transplants them in the late evening hours to the main garden.

#### TASK

a) (i) why do you think Mrs. Kanyere transplants her seedlings in the late evening?

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(ii) After transplanting the seedlings, Mrs. Kanyere keeps on watering the main garden until a certain stage. Explain why she waters the garden.

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b) (i) which process do you think plants use to take up the water Mrs. Kanyere provides to them?

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(ii) Name the cells that enable these tomatoes to absorb water.

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(iii) Which cells do these tomatoes use to transport water and mineral salts from roots to leaves such that they can use the water?

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c) How is the process stated in b) (i) above useful in animals?

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**Item 2**

Mr. Dolobondo bought land which was being used by the person from whom he bought the land. Mr. Dolobondo decided to plant maize crops for his family but he observed the following features on leaves in his plantation after planting such as stunted growth, yellowing of leaves, Poor root and fruit development and premature death of plant parts.

**TASK**

(i) Which mineral elements do you think were deficient in the soil?

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(ii) Which advises can you give to Mr. Dolobondo about deficient elements?

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**Item 3**

During breathing, the following processes occur in the body so as air can enter man. The volume of the chest increases. Air reach in oxygen enters through the nose and travels to the lungs. Intercostal muscles of the rib cage contract. Pressure of the chest decreases below atmospheric pressure. The rib cage moves upwards and outwards. The above process is not in its order.

**TASK**

As a biology learner;

a) Organize the above process in its normal flow for breathing to occur.

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b) Explain why breathing is very important to animals.

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**SECTION B**

Part I

Answer **one** item from this part.

**Item 4**

A community in Uganda is cutting down trees in a nearby forest to create new space for farming because food yields from the land they are currently using has declined. A government authority has stopped them from clearing the forest. The community members see no reason why they should be stopped.

**TASK**

- a) What general term or phrase would be used to refer to what the community is doing to the forest?
- b) Write an essay to the community which will make them to appreciate the government’s action and how they can stay on their current land.

**Item 5**

Jordan a 12 year old boy who is very active in games and sports and so like doing physical exercises every morning. His mother back home is six months pregnant and takes care of her 90 year old grandfather, Jordan’s father is working at supermarket in Kampala as an attendant. The family has been having issues over



which food to prepare that will suit the needs of each family member. You have been contracted as a nutritionist to save the situation in the family.

### **TASK**

Design a food menu for each individual in the family and this should include the rationale and reasons why.

## **Part II**

Answer **one** item from this part.

### **Item 6**

A farmer in Nankandulo village planted his maize in a well cleaned and properly prepared garden at the start of the rainy season. He used good seed varieties that had been supplied under operation wealth creation project. to his surprise after two months, the maize plants were short, stunted and had put on very small maize cobs. The leaves had yellow and green patches and were equally small. He had a very low harvest and had losses that season. However, being a passionate maize grower, the farmer has not yet given up on growing maize in the same place.

### **TASK**

- a) Explain to the farmer what could have caused the losses.
- b) What advice would you give him in order to improve on his yield next season?

### **Item 7**

Isaac a learner of your school is going for holidays after term three has ended since the holiday seems to be long, he plans to do some vegetable growing as he did in the previous holiday. However, he scared the season might not be right due to the high temperatures.

### **TASK**

- a) Identify the scientific process that Isaac's plants are likely to face and describe how it occurs.
- b) How can he reduce the effect of the process to his plants (attach reasons)

**END**

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