

## SECTION A

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

### Item 1

Mr. Ibrahim is a famous tomato farmer in Masaka. For better harvest, the tomatoes are regularly watered and fertilized, and the plants grow healthy with green leaves, large stems and large fruits. However, last season, soil fungus infected the plants' roots. This was followed by a sudden hail storm, which hit Ibrahim's gardens damaging most parts of the plant. This resulted into very low harvest and poor-quality fruits.

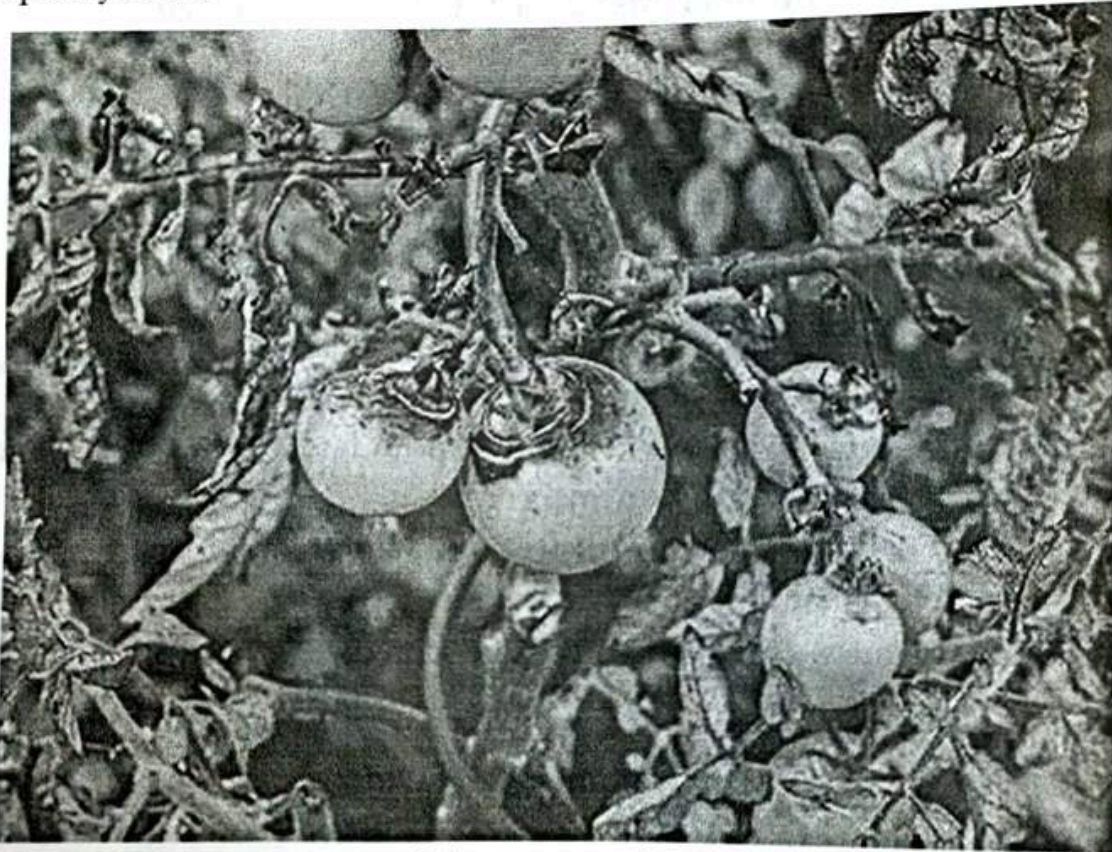


Fig. 1 shows some parts of the tomato plants, which were damaged.

- a) Identify the plant parts that were affected resulting into low harvest.

(03 scores)

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**Item 2**

In a small village in Buganda, a young mother named Nalongo has been struggling with drug addiction for years. One day, while under the drug influence, she attempted to prepare lunch for her family but accidentally left the cooking fire unattended to. The fire quickly spread, engulfing the kitchen and threatening to burn down the main house. Fortunately, her neighbor, Sarah noticed the smoke and rushed to her aid, extinguishing the fire just in time.

**Task**

- a) What are the potential physical and psychological effects of Nalongo's lifestyle to the body functioning, judgement and coordination which led to such a dangerous situation? (03 scores)

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c) What strategies can be implemented to address the root causes of Nalongo's lifestyle to prevent others from falling into the same problem in the community? (03 scores)

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### Item 3

Most Ugandans grow different varieties of crops of the same species in the same garden. With time, reproduction occurs which results into new varieties with unique characters different from their parents. A farmer planted yellow and green peas in the same garden and all the resultant fruits contained yellow seeds only. The farmer got confused as he did not have clear explanation for the harvest. The following season the farmer planted the yellow peas which he had harvested from the previous season. The farmer was much surprised with results as some seeds were yellow and others were green.

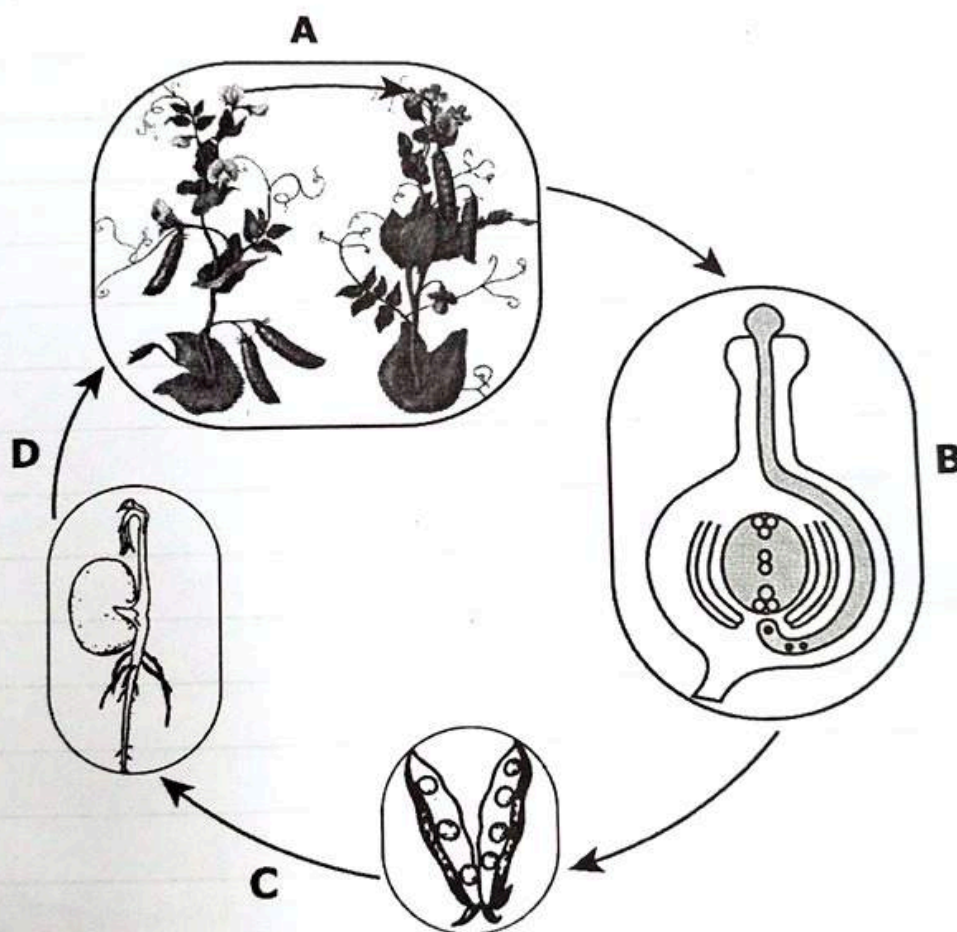


Fig. 3 shows the summary of some of the processes that resulted into different harvests of the farmer.

### Task

(a) Identify the processes taking place at A, B, C and D.

(02 scores)

A \_

B \_

C\_

D\_

(b) Describe how process B occurs.

(04 scores)

(c) Using genetic diagrams, explain to the farmer why he obtained different varieties of peas in the two seasons.

(06 marks)



## SECTION B

### Part 1

Answer only one item from this part. Answers should be written in the answer booklet(s) provided.

#### Item 4

Malaria is common among people living near water bodies. In addition, most people living near water bodies dump domestic wastes and sewage into the waters bodies. This results into outbreak of water-borne diseases such as cholera in the surrounding communities.

#### Task

Describe the occurrence of ``these diseases'' in the communities surrounding water bodies and suggest solutions to the problems.

#### Item 5

A farmer bought a bushy fertile land in Kiboga for agriculture. He cleared the bush and burnt all the cut trees and grasses. He planted maize every season and the harvests were very good in the first two years. For better yields the farmer used to spray the garden herbicides to kill the weeds and pesticides to kill the army worms, which were destroying the maize. In the third year, the harvest was low compared to the previous harvests. The farmer was disappointed but he did not know the cause of poor yields.

#### Task

Explain to the farmer the causes of low yields and suggest the solutions to the problem.



## **Part 2**

Answer only one item from this part. Answers should be written in the answer booklet(s) provided.

### **Item 6**

In a rural village in West Nile, a mother is concerned about the health of her 2-year-old child, who is malnourished and frequently ill, shortly after weaning him. The family's staple food is posho (cornmeal porridge) and unfried green vegetables, which they eat twice a day. The child is energetic but he is not gaining weight.

### **Task**

Describe the different processes that occur in the child's body to enable him to be energetic. Explain to the mother why her child is not gaining weight and suggest recommendations.

### **Item 7**

Athletes mainly feed on carbohydrates and proteins during training sessions, and before and after competitions. However, some athletes prefer feeding on proteins only and such athletes, irrespective of their good skills and techniques, they perform poorly during competitions. In addition, during competitions athletes are given glucose and water but some athletes just pour them over their bodies, especially on the head, instead of consuming them. This makes them to be very weak and tired before the end of the competitions.

### **Task**

Explain to the athletes the roles of the different nutrients, which they believe are useless in their bodies, Describe how these nutrients could make them stronger throughout the competition and suggest recommendations to the athletes for better performance.

**\*END\***