END OF YEAR ASSESSMENT

S.5 BIOLOGY PRACTICAL

TIME 2 HOURS

Instructions

- Attempt all items
- Responses to items must be written in the spaces provided

1. Hamza a farmer cultivating maize on large scale for commercial gain buys maize seeds every year from five different breeder farms for planting. At the beginning of this year, most of the maize seeds he bought did not germinate even when the rains were reliable. He sought for help from an agricultural officer who reported to him that some of the seeds he planted were spoilt by the humid conditions of the storage environments. Such conditions activated metabolic reactions that degrade the food reserves stored in the seeds, decreasing the amount of food available to support germination. The longer the seeds stay in humid environment the greater the rate of metabolism and the lower the viability of such seeds at the time of planting.

Hamza is now careful to chose seeds with high viability to minimize loses. He has come to you for help

The rate of metabolism in the seeds is shown by the rate of decomposition of solution H by active substance in the maize seed extract. The rate of decomposition of solution H can be measured by determining the height of contents after 30 seconds in the test tube containing 3cm^3 of solution H and 2cm^3 of maize extract

You are provided with

Solution H

Extracts A, B, C, D, and E obtained from seed samples got from different farmers

Design and carryout an investigation to determine the rate of decomposition of solution H by the active substance present each maize seed extract.

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(b) Using the graph below analyse the results of your investigation

(c) Recommend the most suitable maize seeds Hamza should buy

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2. A Cytotec company uses plant stem cells to produce a large number of identical plants. Specimen T is one of the plant organs that supplies tissues or cells that can be cultured to give rise to identical plants. The structure of the tissue relates to its functions.

Peel the lower epidermis of one of the fleshy leaves of specimen T, mount it on a slide add 1 drop of iodine solution and observe the structure of the tissue using medium power.

(a) Describe the structure of the tissue observed

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(b) how is the structure of the tissue related to its functions.

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(c)Draw and label one cell and state the magnification of the drawing. (Show how you obtained the magnification)