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Biology

(Theory)

Paper 1

Nov. 2023

Time: 2 Hours

WEST ANKOLE DIOCESE – CHURCH OF UGANDA
S.4 2024 ENTRANCE EXAMINATIONS
BIOLOGY (THEORY)
PAPER I
TIME: 2 HOURS

INSTRUCTIONS

This paper consists of Five (5) Items.

You are required to attempt ALL the Items.

@West Ankole Diocese Examinations Board, 2023

1. Namukasa is a self-employed woman who prepares Cassava chips and roasted meat. This is all she does to earn money to pay rent and school fees for his son Kasibante. One eventful evening she peeled Cassava which later placed into two different containers; one container had rain water and another had salt solution. Cassava was left to stay overnight, when the boy was asked to remove cassava from the containers he discovered that cassava pieces that cassava pieces which were placed in rain water were very stiff and hard a rough surface while those pieces from the salt solution were smooth, soft surface and tasted salty. Kasibante then got liver pieces and put them on sticks and applied Salt on the liver surfaces. However after a small time a liquid started dripping from the liver tissues her tissues even before heating (roasting).

Task:

- (a) Explain the events that could have led to the observations Kasibante made.
 - (b) Suggest was how the plant and animal tissues are suited to carry out the events in (a) above.
2. Abaho Petero s.3 student of Lubiri secondary school went home for holidays and found his father had been hospitalized for a serious illness that had attacked him that made him unable to ingest solid food. In an effort to help him get food nutrients, the doctors feed him on food supplements in liquid form through a tube. The doctors said this was the easiest way to make him obtain necessary nutrients for survival. The boy became very curious about the food nutrients in supplements his father was being fed on. He obtained a sample and took it back to school to try investigating from the school laboratory.

Task:

Explain how Petero can easily determine the nutrients present in food supplements given to his father was father if the doctors were feeding him on supplements contained all food nutrients.

3. S3 students of Mbarara secondary school went for a study tour at Lake Mburo National Park. During their tour they discovered two rare living organisms which they brought back to school. When they reached school they decided to label their organisms as P and Q. using a hand lens and a light microscope the lab technician studied the external structure and the cells of P and Q respectively. He concluded that P and Q were Plant and animal respectively. However the students had divided opinions about the identity of P and Q and waiting for their biology teacher to settle their disagreement.

Task: Describe all the necessary information the lab technician may have used to come to his conclusion about the identity of P and Q.

4. A group tourists heading to Kidepo Valley National Parks had an unfortunate accident along Luwero –Gulu High way. One of the tourists a gentleman sustained serious injuries and was airlifted to Mulago National referral Hospital for specialized treatment. He sustained significant damages to the ski, ribs and had difficulty in breathing in and out and passing out urine. Doctors immediately referred him to intensive care unit for immediate intensive care. The ministry is seeking immediate medical report about the tourist's condition.

Task: Explain how the tourists damaged body structures could affect the functioning of his body.

5. National Agricultural Research Organization (NARO) is a government organization that works on most agricultural researches for species modification and breeding of both plant and animal species. They are seeking to make a new branch in Mubende District where government owns vast chunk of land plots. The surveyors of the organization are planning to make an investigation to choose the best plot for plant breeding and modification. The lab technicians of the organization obtained sample of soil from different pots and took them to the organization national laboratory.

Task: Describe all the necessary investigations that must be done on the soil samples obtained and significance of all the investigated factors help them choose the best plot.

END