

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
ADVANCED CERTIFICATE OF SECONDARY EDUCATION
EXAMINATION - MAY, 1994

133/3A

BIOLOGY PAPER 3A

PRACTICAL (Alternative A)

(For both School and Private Candidates)

TIME: 3.15 Hours.

1. Answer ALL questions.
2. Write your Centre and Index Number on every page of your answer book.
3. Except for diagrams, all writing must be in blue or black ink/ball point pens.
4. Read each question carefully.

This paper consists of 3 printed pages.

1. You are provided with specimen S_1 . Dissect it in the usual way to fully display the digestive and circulatory systems. Deflect the digestive system and its associated structures to the right hand side of the animal.
 - (a) Make a neat well labelled drawing of your dissection
 - (b)
 - (i) Which part of the alimentary canal of specimen S_1 is specialized for water absorption?
 - (ii) In what ways is the structure you have named above adapted for the functions it performs?

LEAVE YOUR DISSECTION WELL
DISPLAYED FOR ASSESSMENT

2. Solution A, B, C and D contain the same substance in varying concentrations.
 - (a) Label four test-tubes as A, B, C and D. Place 10cm^3 of the solutions into their respective test tubes.
 - (b) Into the contents of each of test-tubes A, B, C and D, add two drops of iodine solution provided.
 - (c) Rinse your mouth thoroughly with water, then chew a clean rubber for two minutes.
 - (d) Collect about 5cm^3 of your saliva in a beaker.
 - (e) Dilute the saliva collected by adding 25cm^3 of distilled water. Label it saliva solution.
 - (f) To the contents of test-tubes A, B and D add 1cm^3 of saliva solution at approximately the same time. DO NOT SHAKE.
 - (i) Record the time taken for the blue colour to disappear in each of the four test-tubes.
 - (ii) What is the nature of the substance? Give reasons for your answer.
 - (iii) Why did the blue colour disappear in some of the test-tubes?
 - (iv) What investigation is being made in this experiment?
 - (v) Which is the most concentrated solution? Give reasons for your answer.
 - (vi) Which is the most dilute solution? Give reasons for your answer.
 - (vii) What conclusions can you draw from the above investigation?
 - (viii) Plot a sketch graph showing the results of your investigation in this experiment.
 - (ix) What is the purpose of the experiment in test-tube C?
 - (x) Write a word equation for the reaction taking place in test-tube A, B and D.

3. Observe specimen S_2 under a microscope at a medium magnification.
 - (a) What is the common name of specimen S_2 ?
 - (b)
 - (i) Draw and label the structure concerned with asexual reproduction.
 - (ii) What specific reproductive role does the structure drawn in (b) (i) above play?

 4. Examine the external features of specimen S_3 and S_4 .
 - (i) Give the genus name to which each specimen belongs
 - (ii) What common name is given to both animals?
 - (iii) In what type of habitat would you expect to find the adult forms of S_3 and S_4 ?

 5. Using a hand lens study specimen S_5 carefully.
 - (i) To what subphylum does S_5 belong?
 - (ii) What are your reasons for placing S_5 to the subphylum you named. Restrict your answer to observable characteristics only.
 - (iii) Draw and label one pinnule to show the position of the reproductive structures.
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