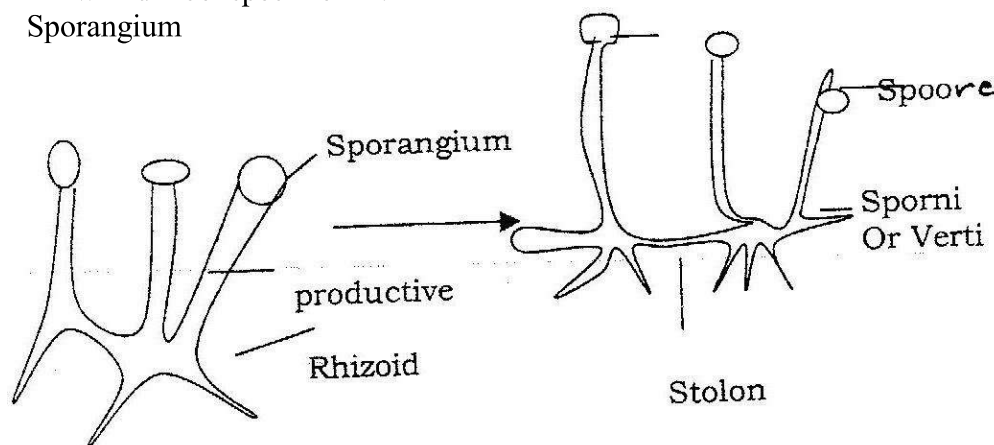
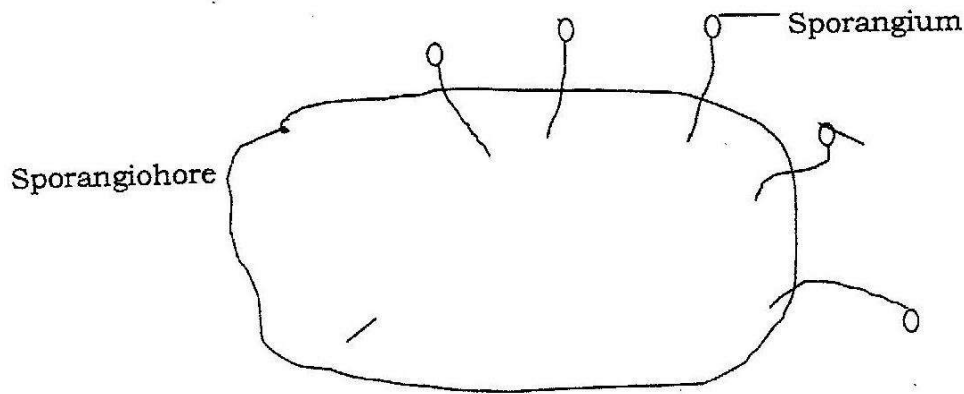


BIOLOGY PAPER 232/2 K.C.S.E 2003
PRACTICAL MARKING SCHEME

1. You are provided with specimens labelled C, D and a solution labelled L

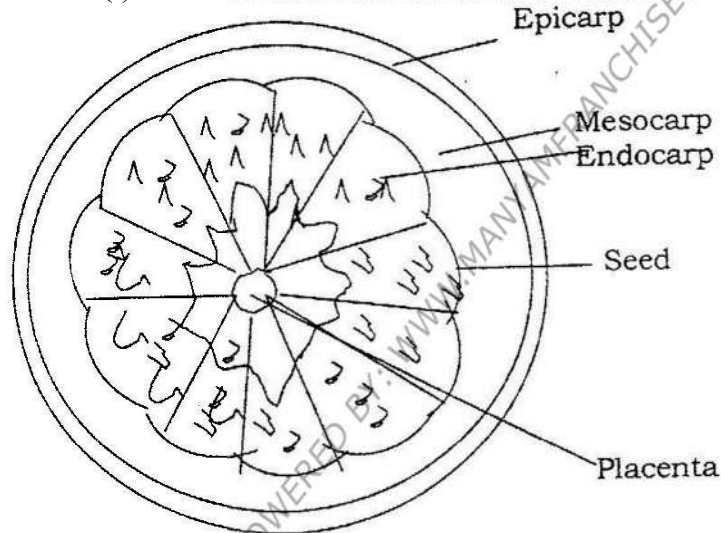
- (a) (i) State the habitat of specimen C
a. Aquatic/ water
- (ii) Name the trophic level occupied by specimen C.
Producer/ first trophic level
- (iii) Give a reason for your answer in (a) (ii) above
It has chlorophyll for photosynthesis
- (b) (i) Place 5cm³ of solution L into a 100ml beaker. Using a straw, blow gently into the solution.
Colour changes to yellow / greenish yellow/orange
- (ii) Give a reason for the observation in (b) (i) above.
Carbon dioxide in exhaled air / exhaled air contains carbon dioxide or carbon dioxide / carbon dioxide in air;
- (c) Place 5cm³ of a solution L into 100ml beaker. Put the forceps, submerge specimen C into one of the 100ml beaker. Put the two beakers in the dark. Leave the set up for at least one hour and observe.
- (i) Record your observation.
Solution in the beaker with spirogyra turns yellow; while the other remained blue or solution in the beaker containing specimen C/spogrya turns yellow / green / greenish yellow;
- (ii) Explain the observation in (c)(i) above.
Spirogyra respire, in the dark producing carbon dioxide; which changes the colour of solution to yellow while the solution in other beaker served as a control;
- (d) Examine specimen D using a hand lens.
Giving a reason, state the division to which the specimen belongs.
Division: Micophyta / mycophyta;
Reason: Non – green / has hyphae / has no chlorophyll.
- (e) What role is played by specimen D in an ecosystem?
Decomposer / causes decay of dead organic matter;
- (f) Draw and label specimen D.
Sporangium





2. You are provided with a specimen labeled E, 0.01% DCPIP and 0.1 Ascorbic acid. Examine specimen E.

- a) (i) What part of the plant is specimen E.
Fruit
- (ii) Give a reason for your answer in (a)(i) above.
- b) Cut a transverse section through specimen E.
- (i) Draw and label one of the cut surfaces.



State the magnification of your drawing?

Mag: range between $X^{1/2}$ to $x 3$ (must be x not x)

- (ii) State the type of placentation of specimen E.
Axial / Axile (accept axile for axial.)
- c) Name the agent of dispersal of specimen E.
Animal; accept man alone as an agent.
- d) State how specimen C is adapted to its mode of dispersal.
Seeds have hard / slimy seed coats / with mucus which prevent indigestion.
Scented to attract animal / dispersal animal;
Succulent to attract / so that it is edible / can be eaten;
- e) i) To 1cm^3 of DCPIP in a test tube, add 0.1% solution of ascorbic acid drop by drop until the colour of DCPIP disappears. Shake the test tube after addition of each drop. Record the number of droplets used.
2 drops; drops from 1 to 4 drops.

Squeeze out the juice from specimen E into a beaker. Filter and discard the residue.

- ii) To another 1cm³ of DCPIP in a test tube add the juice from specimen E drop by drop. Shake the test tube after addition of each drop until the colour of DCPIP disappears. Record the number of drops used?
- iii) From the results obtained in (e) (i) above, calculate the percentage of ascorbic acid in the juice obtained from specimen E. Show your working
 $2/8 \times 0.1 \times 100 = 2.5\%$
Calculation done only if the drops are within the stated range above.
- iv) State two factors that would influence the accuracy of the results.
Size of dropper / size of the drops.
Period of storage of specimen E/extent/degree of ripening.
Impurities.
- (f) (i) Suggest the expected results if the juice from specimen E was boiled for 30 minutes, cooled and added drop by drop to DCPIP solution.
(ii) Explain the expected results in (f) (i) above.
Boiling/heat destroys Ascorbic acid;

3. You are provided with a specimen labeled B.

- a) i) Name the class to which the specimen belongs
ii) Give two reasons from your answer in (a)(i) above.
- b) What term is used to describe the shape of the specimen?
- c) Stroke the specimen from the :
 - i) Head to tail. Record your observation
 - ii) Tail towards the head. Record your observation
 - iii) What is the significance of your observation in c (i) and (ii) above?
- d) Measure in millimeters the length of the :
 - i) Specimen from the tip of the mouth to the tip of the tail.
Length _____ cm.
 - ii) Tail from the anus to the tip of the tail
length _____ cm
 - iii) Using the measurements in (d) (i) and (ii) above, calculate the tail power.
- e) Name and draw the fins on the specimen that:
 - i) Enable the specimen to balance, brake and change direction.
 - ii) Prevent the fish from rolling and yawing.