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 an 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.

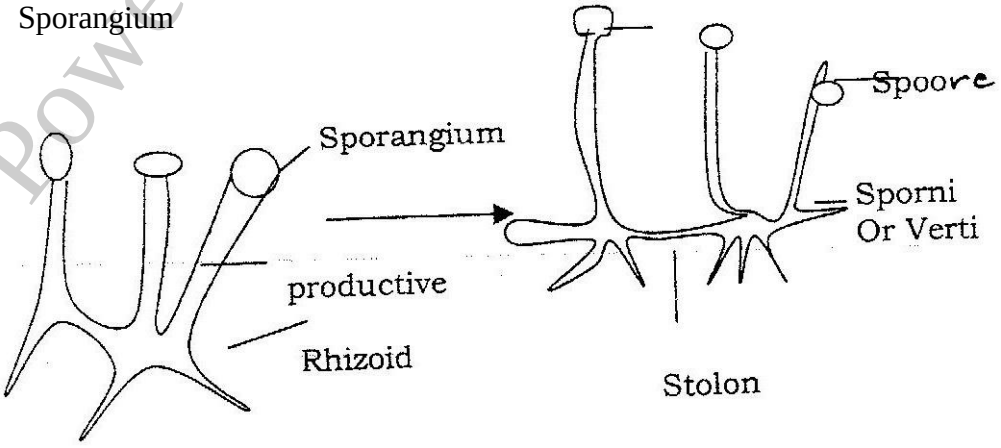
(i) Record your observation.
Solution in the beaker with spirogyra turns yellow; while the other remained blue or solution in the beaker containing specimen C/spogyra turns yellow / green / greenish yellow;

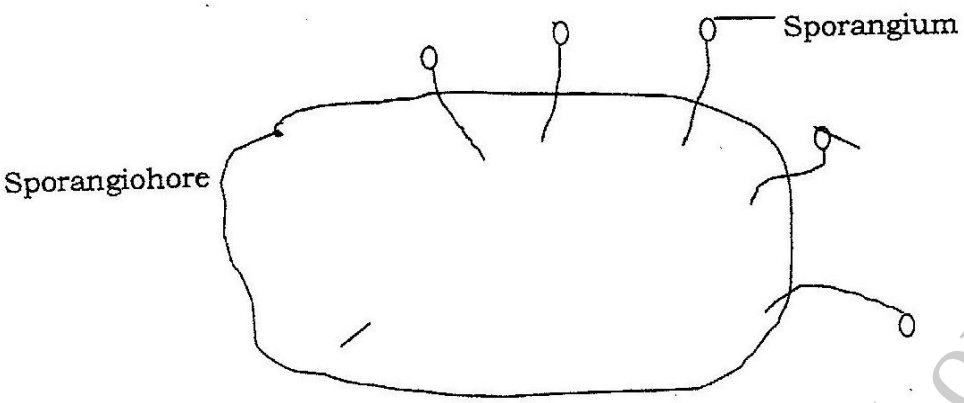
(ii) Explain the observation in (c)(i) above.
Spirogyra respires, in the dark producing carbon dioxide; which changes the colour of solution to yellow while the solution in other beaker served as a control;

(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 chlophyll.

(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





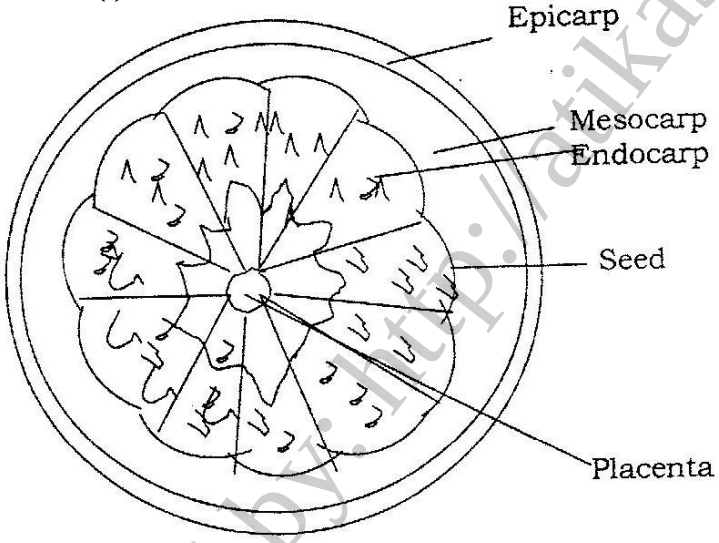
2. You are provided with a specimen labeled E, 0.01% DCPIP and 0.1 Ascorbic acid. Examine specimen E.

a) (i) What part of the plant is specimen E.
Fruit

(ii) Give a reason fro 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 ½ to x 3(must be x not x)

(ii) State the type off 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 / slimmy 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 cid 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 $1cm^3$ 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
2/8x0.1;025%
Calculation done only if the drops are within the stated rang 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.