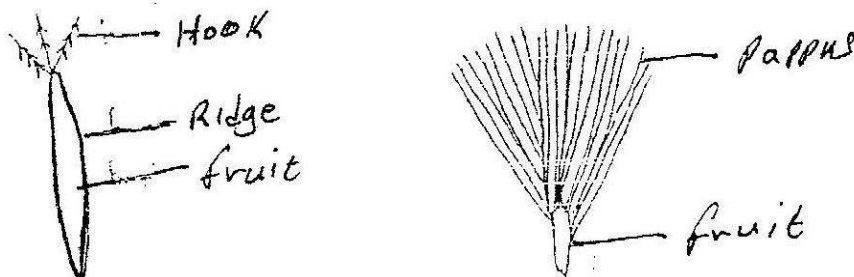


**BIOLOGY PAPER 231/2 K.C.S.E 2002
PRACTICAL MARKING SCHEME**

1. You are provided with specimens labeled D₁, D₂, D₃ and D₄. Examine them
(a) Draw and label specimens D₁ and D₂



Magnification X3 – X7

- (b) Giving reasons state the agent or method of dispersal of the specimens.

Specimen	Agent or method of dispersal	Reasons
D ₁	Animal/ man	Presence of hooks acc. Hook like structures Rej. Spikes, spines, thorns e.t.c
D ₂	Wind	Presence, of pappus; light/ air like extensions
D ₃	Wind	Presence of wings; light/ wing like structures
D ₄	Explosive	Line of weakness along the ovary wall.

- (c) State the types of gynoeciums and placentation of specimen D₄.

Type of (i) Gynoecium Monocarpus
(ii) Placentation Marginal

2. You are provided with olive oil, liquids labelled L₁ and L₂ and an Irish potato. Label two test tubes A and B. Place 2 cm³ of water into each test tube. To test tube labelled A, add 8 drops of liquid L₁. Shake both test tubes. Allow to stand for five minutes.

- (a) (i) Record your observations
Test tube A
Oil is broken up into small droplets; which are dispersed/ spread/ throughout in liquid oil becomes emulsified/ debules/ tiny droplets; which forms a suspension/ becomes cloudy/ turbid/Forms a white ppt.
- Testy tube B
Oil floats on water / of mixing takes place/ Two separate/ immiscible layers are seen.
- (ii) Name the process that has taken place in test tube A.
Emulsification

- (iii) State the significance of the process named in (a) (ii) above to increase surface area.
- (iv) Name the digestive juice in humans that has the same effect on oil as liquid L₁
I- Bile

Region of alimentary canal into which the juices is secreted
II- Duodenum

- (b) Label two test tubes C and D. place 2cm³ of liquid L₂ into each. Add a drop of iodine into each test tube.

- (i) Record your observation
Blue black/ black/ bluish/ blue/ grayish/ purple blue

- (ii) Suggest the identity of L₂
Starch

Cut out a tube whose sides are 1 cm from the Irish potato provided. Crush the cube to obtain a paste. Place the paste into a test tube labelled C. Leave the set up for at least 30 minutes.

- (iii) Record your observation.
Contents of D remain unchanged/ blue black; blue black in C
Disappeared / fades light yellow/ brown/ orange

- (iv) Account for the results in (b) (iii) above
Enzymes amylase; in potato breaks down starch; into sugars; that do not give blue- black colours with iodine.

- (c) (i) Cut another cube whose sides are 1 cm from the Irish potato.

Crush the cube. Place the crushed paste into test tube.

Carry out food test with the reagent provided.

Record the procedure and results

Procedure

Add equal amount of benedicts solution to the paste and boil; heat/ to boil/ warm.

Results

Grey/ yellow/ orange/ brown/ brick

- (ii) Account for the results in (c) (i) above
Starch in potato is converted to maltose/ reducing sugar/ simple sugar; by enzyme amylase/maltose (owwttte)

3. You are provided with specimens labelled Q and R. examine them.

(a) Giving reasons state the phylum of the specimens

Phylum Arthropoda

Reasons Exoskeleton/ chitinous

(b) (i) Name the class to which the specimen belong

Insecta.

(ii) State the features common to both specimens that are

Characteristics of the class mentioned in (b) (i) above.

- 3 body parts

- 3 pairs of legs

- A pair of antennae