

Making Guide for final revision

Name: Centre/ Index No.

School: Signature:

553/3
BIOLOGY
Practical
PAPER 3
July/August 2018
2hours



WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY

(Practical)

Paper 3

2hours

INSTRUCTIONS TO CANDIDATES:

- This paper consists of **three** questions.
- Answer **all** questions.
- Drawings should be made in the spaces provided.
- Use sharp pencils for your drawings.
- Coloured pencils or crayons should **not** be used.
- No additional sheets of writing paper are to be inserted in the booklet.
- Work on additional sheets will **not** be marked.

FOR EXAMINER'S USE ONLY.

Question	Marks	Examiner's No. & Initials
1		
2		
3		
TOTAL		

- You are provided with specimen K. Cut out four equal cubes each measuring 1cm x 1cm x 1cm.
- Label four test tubes as: T₁, T₂, T₃ and T₄.
- Add 3cm³ of Hydrogen peroxide to test tubes T₁, T₂ and T₃.
- Add 3cm³ of distilled water to test tube T₄.
- (a) Carry out tests on the cubes following the instructions in the table below. Record your observations and deductions. (08marks)

TEST	OBSERVATIONS	DEDUCTIONS
(i) To test tube T ₁ Add one whole cube	Bubbles given off slowly; effervescence at slow rate	Slow break down / decomposition of hydrogen peroxide
(ii) To test tube T ₂ Add one cube after cutting it into smaller pieces	Many bubbles; Fast rate of effervescence	Fast break down / decomposition of hydrogen peroxide
(iii) To test tube T ₃ Add one whole cube after boiling it for 5 minutes	No bubbles; No effervescence	No decomposition of hydrogen peroxide
(iv) To test tube T ₄ Add one whole cube	No bubbles; No effervescence	Water not decomposed; No break down of water

(0 ½ mark)

b) Name the active substance in K
Enzyme Catalase ✓

(02 marks)

c) Name two factors being investigated in the experiment?
- Temperature ✓ ✓ - Enzyme concentration ✓ ✓ - Specificity of the enzyme ✓ ✓ any two correct

(02 marks)

d) Explain your results in each test tube above.

(i) Test tube T₁
Few bubbles formed because of small surface area exposed; less enzyme available to decompose hydrogen peroxide.

(02 marks)

(ii) Test tube T₂
Many bubbles because large surface area exposed; more enzyme active site for decomposition of hydrogen peroxide.

(02 marks)

(iii) Test tube T₃
 No bubbles because boiling; the cube
 denatured; the enzyme;
 res. lost
 res. destroyed (02 marks)

(iv) Test tube T₄
 No bubbles because water is not
 a substrate for enzyme catalase; (02 marks)

e) (i) Why was the measurement of the cubes used of the same size. (0½ marks)
 To keep original enzyme
 concentration; for consistent results;

(ii) Name one other factor that affects the ingredient in K other than the ones investigated in the experiment. (01 mark)

pH, Substrate concn; Activators; Inhibitors

2. You are provided with specimens A, B and C which are fruits.

(a) Study the specimens carefully. Using the observable features complete the table below. (09 marks)

Specimen	Identity	Mode of dispersal	Features to support mode of dispersal
Desmo A	Schizocarpe	Animal	Sticky hairs for attachment on the skin/coat of the animal.
Bean B	Legume	Self explosive mechanism	Two suture lines of weakness which split to release seeds
Tomato C	Berry	Animal	Brightly coloured edible succulent, Holes to attract the animal.

(b) Cut specimen C transversally and open up specimen B

(i) Describe the arrangement of seeds in specimen C. (01 mark)

Seeds are radially attached around the central placenta.

(ii) Give three differences between specimen B and specimen C. (03 marks)

Specimen B	Specimen C
Dry pericarp / fruit wall	Succulent pericarp / fruit wall
Fused pericarp	Separated pericarp
Seeds arranged along the marginal placenta / marginal	Seeds arranged around the central placenta / Axile Placentation

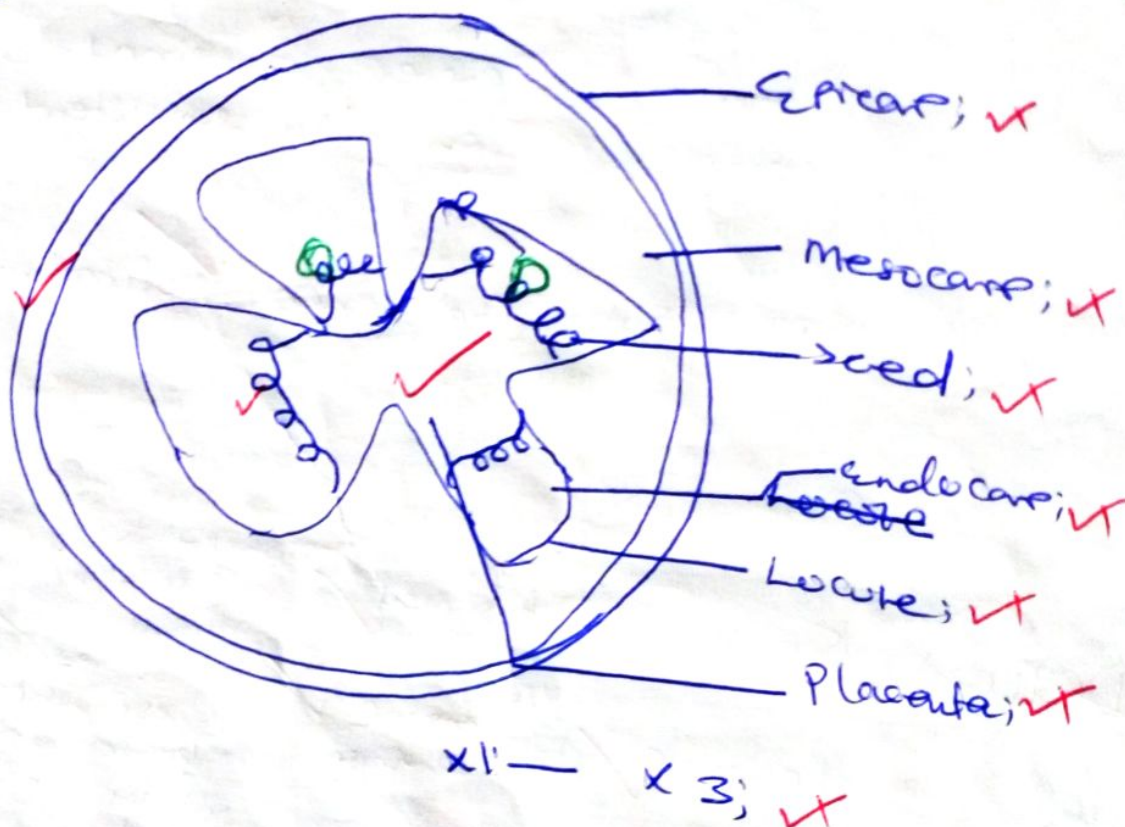
Turn Over

- (c) In the space below draw one of the sections of specimen C and label. State your magnification.

A drawing showing the transverse section of specimen C

Drawing marks
- Placenta
- seeds
- Epicarp

T-04
D-02
L-03
M-04
A-04
H-04



20 marks

3. You are provided with specimens O, P, Q and R which are freshly killed animals. Using hand lens where possible, observe the specimens and answer the questions that follow.

- (a) Specimens O, P, Q and R belong to the same phylum. State three reasons why they belong to same phylum. (03 marks)

Joint legs
Exoskeleton
Segmented body

- (b) Examine carefully the shape of the abdomen, eyes, wings and legs of specimens O, P, Q and R, with the aid of a hand lens. Describe their body parts and record two structural observable features of each specimen in the table below. (08 marks)

Body Parts	Specimen O	Specimen P	Specimen Q	Specimen R
Shape of abdomen	Soldier termites Dorso-ventrally flattened Rounded arc./oval shape	Cockroach Dorso-ventrally flattened	Housefly Dorso-ventrally Rounded arc. oval shaped	Tick Dorso-ventrally flattened arc. rounded
Eyes	No eyes ✓	Two pairs large compound eyes ✓	Two pairs large compound eyes ✓	No eyes ✓
Wings	No wings ✓	All veined Two pairs outer wings straight of wings thick thinner wings thin, membranous folded, broad	Membranous one pair veined of wings ✓	No wings ✓
Legs	3 pairs 6 legs Jointed Smooth	3 pairs 6 legs Jointed Have spines long hind limb	3 pairs 6 legs Jointed Hairy	4 pairs 8 legs Jointed Smooth

- (c) Using the characteristic features of the abdominal shape, eyes, wings and legs of each specimen in (b) above, construct a dichotomous key to identify them. (03 marks)

1a. Has Rounded body shape
b. Has dorso-ventrally flattened body

2 pairs of legs
6 legs

Wings
Wings

Turn Over

- (d) Place specimen O with its dorsal part upper most, using a hand lens, locate the neck region and cut it off. Draw and label the dorsal view of the head region of specimen O. State your magnification. (06 marks)

DRAWING OF DORSAL VIEW OF THE HEAD OF SPECIMEN O.

T = $0\frac{1}{2}$

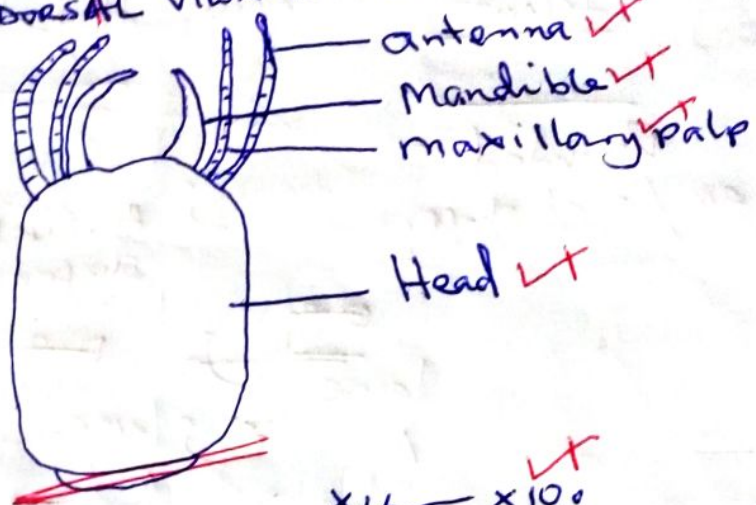
D = 02

L = 02

M = $0\frac{1}{2}$

A = $0\frac{1}{2}$

N = $0\frac{1}{2}$



x4 — x10;

Drawing mark;

- Rectangular head;
 - Tapering mandibles;
 - Maxillary palps
 - Antennae
- any two

06 marks

20 marks