231/3 MARKING SCHEME

BIOLOGY PAPER 3

MUSLIM SCHOOL JOINT EVALUATION TEST

July 2024

PRE- KCSE EVALUATION EXAM

1 ¾ hours

Kenya Certificate of Secondary Education

1) (a)You are provided with a substances labeled **N,P,Q,V** and **W. N** is Benedict's solution, **P** is dilute hydrochloric acid, **Q** is sodium hydrogen carbonate solution, suspensions **V** and **W** are test solutions.

i) Using the reagents provided, test for the food substances in the suspension. In the table below, record the food tested, Procedures, observations conclusions. (10mks).

Substance	**Food substance being tested for**	**Procedure**	**Observations**	**Conclusion**
V	Reducing sugar(s)	To $2cm^3$ of solution V in a test tube, add equal amount of equal amount of Benedict's solution, then heat to boil.	Colour changes from blue to green to yellow to orange and brown	Reducing sugars present
W	Reducing sugars (s)	To $2cm^3$ of solution W in a test tube, add equal amount of equal amount of Benedict's solution, then heat to boil.	Blue colour of solution N persist	Reducing sugar absent.
	Non-Reducing sugars (s	To $2cm^3$ of solution W in a test tube, add 3 drops of HCl, warm, cool and add Na_2CO_3 until fizzing stops, add equal amount of equal amount of Benedict's solution, then heat to boil.	Colour changes from blue to brown	Non reducing sugars present.

ii) Name one enzyme that may be required to digest suspension **W** in the alimentary canal in human beings. State the organ from which the enzyme is produced. (2 marks)

Enzyme	**Organ Producing the enzyme**
Maltase/ Sucrase/ Galactose	**Ileum/Small intestine**

(iii) State the role of the following in the experiment:

(a) Substance Q (2marks)

To neutralize excess HCl in the reaction.

(b) Substance P (1mark)

To hydrolyse/digest non reducing sugars/complex sugar to reducing sugars/simple sugars.

2.(a) You are provided with specimens labeled **W, X, Y** and **Z** which are of plant origin. Using the features in the order below, construct a dichotomous key to identify the specimens.

Simple or compound leaves;

Leaf venation;

Leaf margin; (6marks

1**(a) Leaves simple……..go to 2**

(b) Leaves compound ……..go to Z

2(a) Leaves parallel venation……..W

(b) Leaves with network venation …… go to 3

3(a) Leaf margin serrated ……. Y

(b) Leaf margin smooth…….X

Or

1(a) Leaves compound……..Z

(b) Leaves simple……..……..go to 2

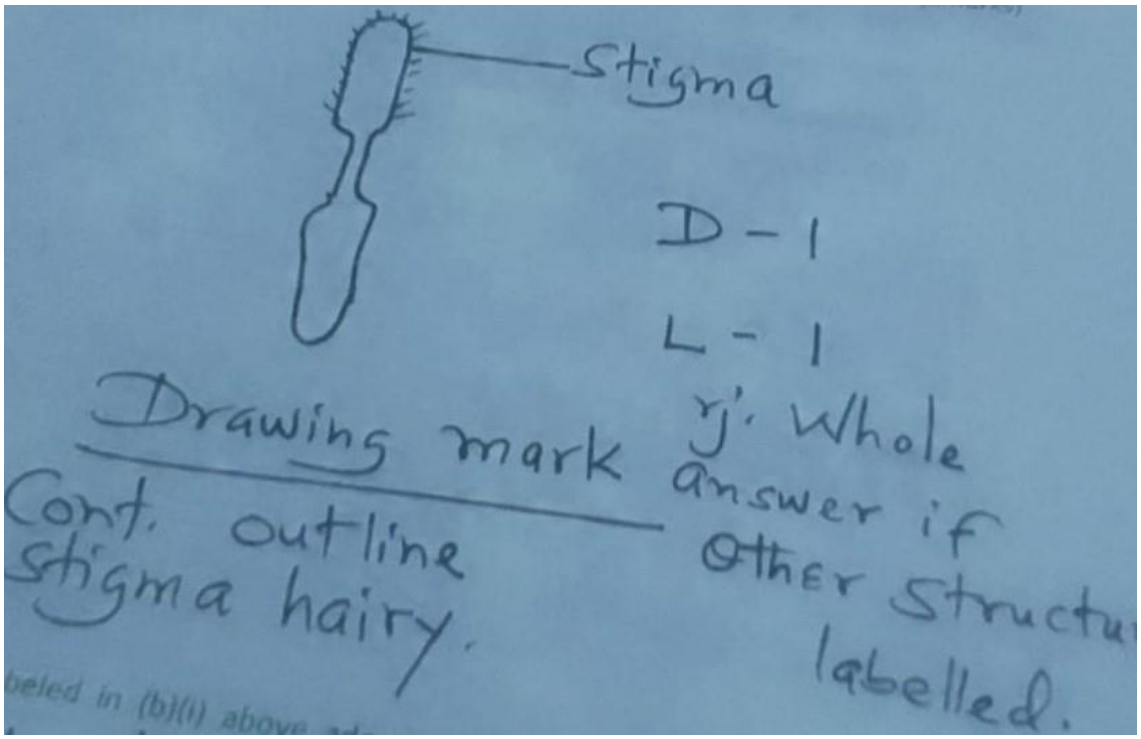
2(a) Leaves network venation……..go to 3

(b) Leaves with parallel venation …… W

3(a) Leaf margin smooth……. X

(b) Leaf margin serrated…… Y

b)(i) Open the flower of specimen X. Draw the pistil and on it label the structure that receives pollen grains. (2marks)



(ii) How is the structure labeled in (b)(i) above adapted to perform its function. (1marks)

Sticky to trap pollen grains; Hairy to trap pollen grains

(c) Using your fingers, strongly squeeze the stem of specimen W.

(a) Record your observations (1mark)

Stem squeezes/Collapses/crashes/clear liquid oozes out/mucus/slimy

(ii) From the observations, explain how the specimen is adapted to its habitat. (1mark)

Succulent/stores water/juicy/fleshy; water keeps the stem turgid.

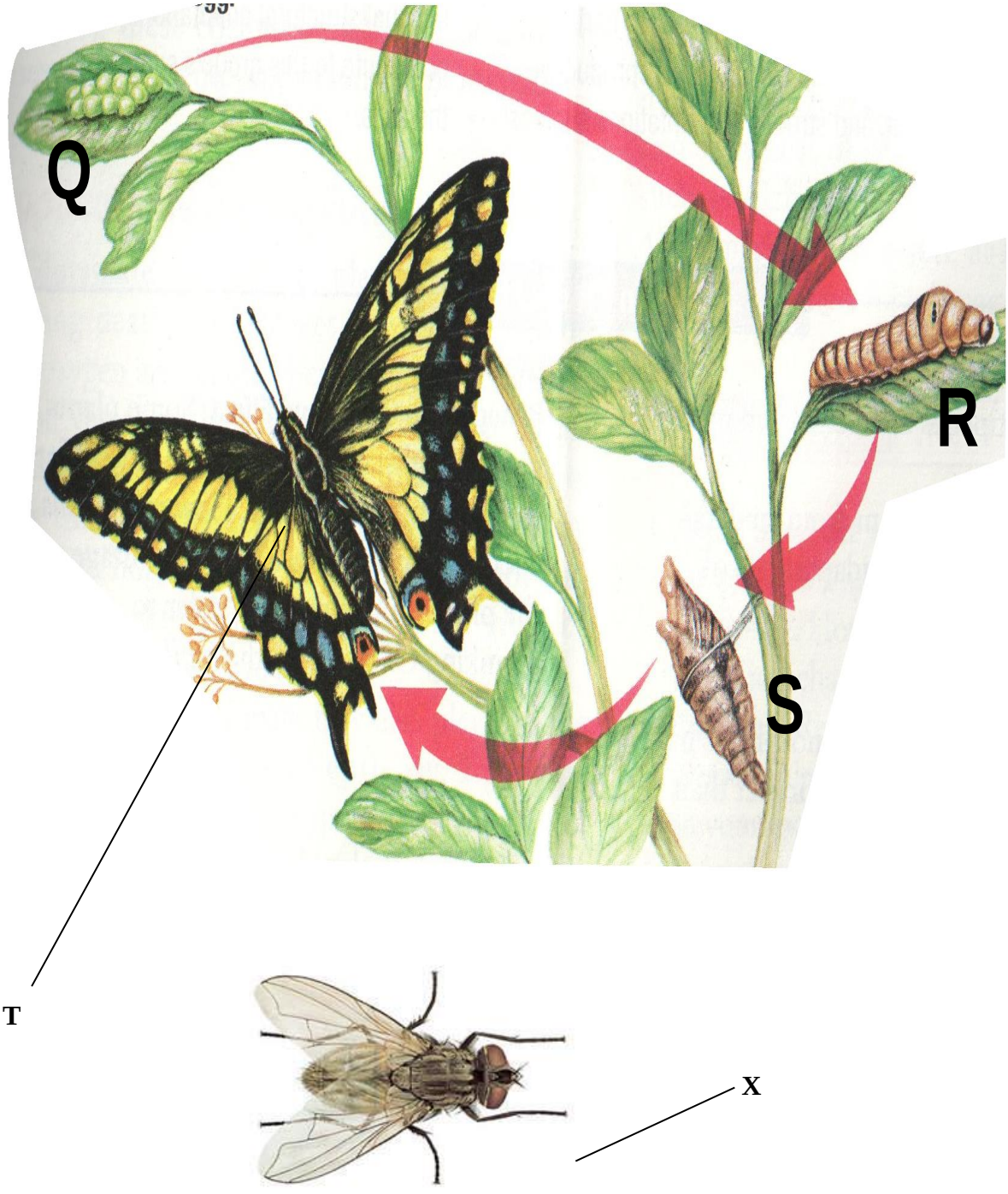
e) (i) Give one observable feature that adapt specimen **Z** to its habitat. (1mark)

Presence of thorns/Spikes/Small leaves.

(ii)State how the feature adapt the specimen for survival in its habitat. (1mark)

Protection against browsers/herbivores/reduce transpiration/water loss

Q3 Study the photograph below and answer the questions that follows.



3 (a) With three reasons, state the class to which specimen **T and X** belong. (4marks)

Class: **Insecta**

Reasons

Presence of three pairs of legs/six legs.

Presence of a pair of antennae;

Presence of three body parts (head, thorax and abdomen)

b) How are the external features of specimen **X** adapted for locomotion. (2marks)
Presence of legs for walking;

Presence of wings for flight;

Presence of halters for balance.

c) At what stage of development is specimen **R** in the life cycle of specimen **T**? (1mark)

Larval; rej. Larva, second stage

d) Give two reasons for your answer. (2marks)

Lack of antennae;

Lack of wings.

Lack of exoskeleton

e) State two biological advantages of the above stage of development in the life cycle of specimen **T.** (2marks)

Lives in different habitat/feeds on different food thus avoids competition;

A stage of rapid growth thereby internal structures/organs develop.

f) Name the stage of development represented by letter **S.** (1mark)
Pupal rej. Pupa