NAME:..... Index Number:.....

Candidate's Signature:.....

231/3 Date:.....

BIOLOGY Marking scheme

Paper 3 CHAMPIONS JET JOINT EXAMINATION

March/April 2019

PRE KCSE EVALUATION EXAM

1 ¾ hours

Kenya Certificate of Secondary Education

BIOLOGY

Paper 3

(PRACTICAL)

1 ¾ hours.

Instruction to candidates.

(a) Write your name and index number in the spaces provided above.

(b) Sign carefully and write the date of examination in the paces provided above.

(c) Answer all the questions in the spaces provided.

(d) You are required to spend the first 15minutes of the 1 ¾ hours allowed for this paper reading the whole paper before commencing your work.

(e) Additional pages must not be inserted

(f) This paper consists of 6 printed pages.

(g) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

(h) Candidates should write all the answers in English.

For Examiner's use only.

Question	Maximum Score	Candidate's Score
1	15	
2	13	
3	12	
Total Score	40	

1) (a)You are provided with a substances labeled **N,P,Q,R,S ,V** and **W. N** is Benedict's solution,**P** is dilute hydrochloric acid, **Q** is sodium hydrogen carbonate solution,**R** is 10% sodium hydroxide solution, suspensions **V** and **W** are test solutions.

a)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 2cm³ of soln V add equal Amount of Benedicts soln/ N, then heat;	Colour Changes from blue → green → yellow → orange → Brown;	Reducing Sugar(s) Present
W	Reducing Sugar(s);	To 2cm³ of soln W add equal Amount of Benedicts soln/ N then heat;	Blue colour of soln N Persists;	Reducing Sugar absent;
	Non Reducing Sugar(s);	To 2cm³ of soln W add 3 drops of Hcl, warm, Cool add $NaHCO_3$ until fizzing stops, add equal Amount of Benedicts soln/ N then heat;	Colour Changes to Brown;	Non Reducing Sugar Present;

b)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
i) maltase/ Sucrase/ galactase	Ileum / Small intestine;

(c) State the role of the following in the experiment.

(i) Substance Q (2marks)

To hydrolyse/ digest/ non reducing sugar/ Complex sugar; to reducing sugar/ Simple sugar;

(ii) Substance P (1mark)

To neutrolyse excess HCl in the reaction;

TURN TO NEXT PAGE

Total 15 marks

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

Simple or compound leaves;

Leaf venation;

Leaf margin; (6marks)

1(a) leaves simple ..... go to 2
(b) leaves Compound ..... z'

2(a) leaves Parallel Venation ..... W
(b) leaves network venation go to 3.

3(a) leaf margin serated ..... Y
(b) leaf margin Smooth X

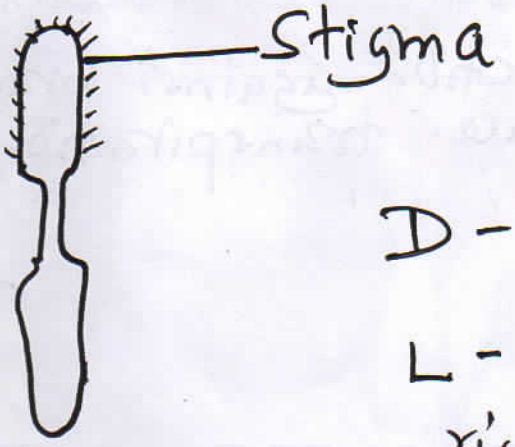
or

1(a) leaves Compound ..... Z
(b) leaves Simple ..... go to 2

2(a) leaves network venation go to 3
(b) leaves Parallel Venation .... W

3(a) leaf margin Smooth X
(b) leaf margin serated .... Y

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



D - 1

L - 1

r/. Whole

Drawing mark answer if

Other structures labelled.

Cont. outline

stigma hairy.

(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.

(i)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 ;

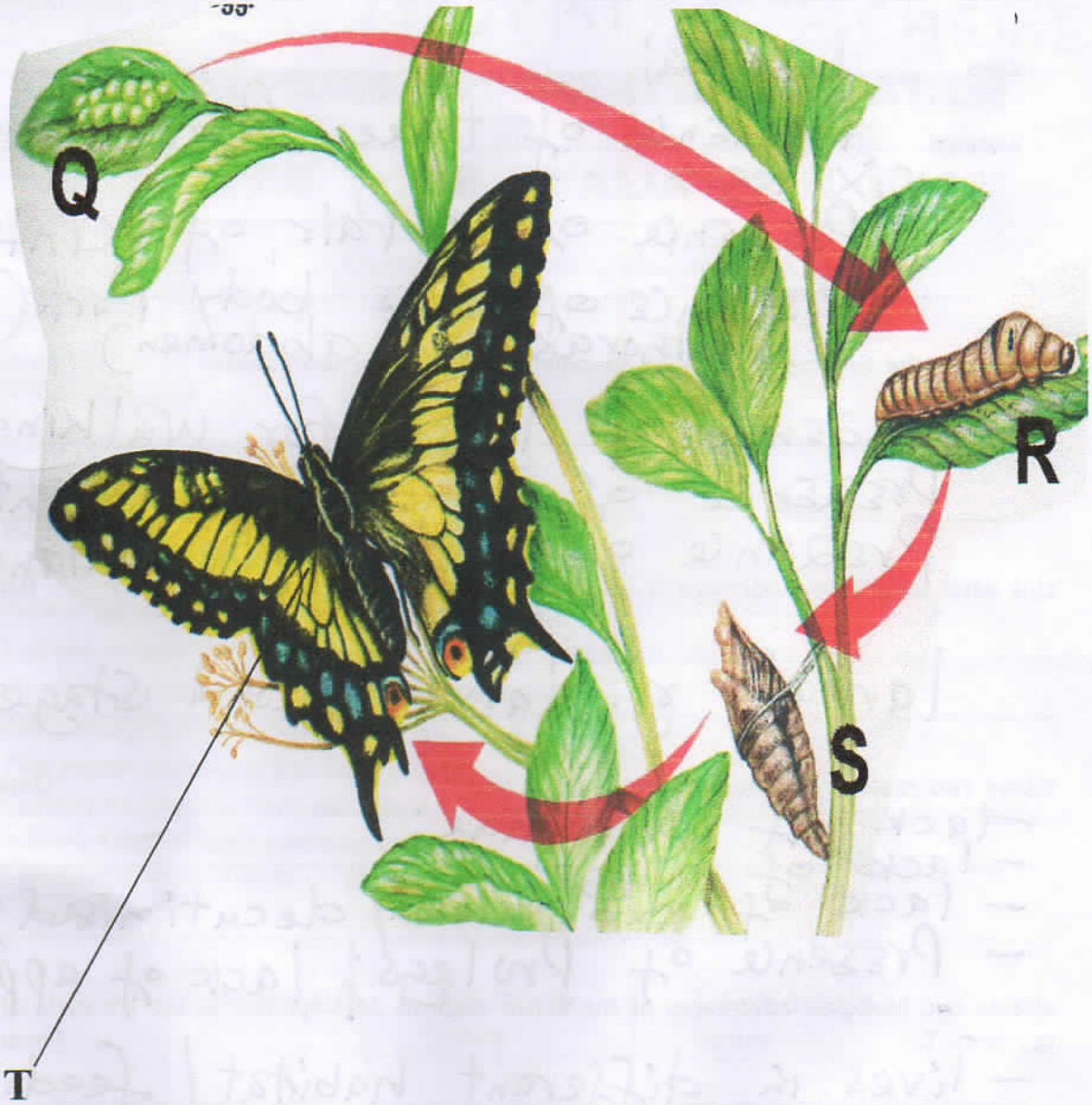
(ii)State how the feature adapt the specimen for survival in its habitat. (1mark)

Protection against browzers / herbivores /
reduce transpiration / water loss ;

Total (13) marks

TURN TO NEXT PAGE

Q3 PHOTOGRAPH



Kenya Certificate of Secondary Education

BIOLOGY

231/3

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; rj. larva, second stage;

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

- lack of antennae;
- lack of wings;
- lack of exoskeleton/ decutinised;
- Presence of prolegs; lack of appendages;

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; rj. pupa

THIS IS THE LAST PRINTED PAGE

Kenya Certificate of Secondary Education
BIOLOGY
231/3

12 marks