

231/3

BIOLOGY

Paper 3

Practical's

July/August - 2014

Time: 2 Hours

KISII SOUTH DISTRICT JOINT EVALUATION TEST-2014.

Kenya Certificate of Secondary Education (K.C.S.E)

CONFIDENTIAL

Each candidate requires;

1. 10ml of solution labeled W (mixture of 10% glucose and 10% egg white).
2. 10% sodium hydroxide.
3. 10% copper (ii) sulphate with a dropper.
4. 10ml measuring cylinder.
5. Iodine solution with a dropper
6. Benedict's reagent.
7. Dil.hydrochloric acid.
8. Sodium hydrogen carbonates solution.
9. A test tube rack.
10. 5 test tubes (Clean)
11. A test tube holder.
12. Distilled water in a wash bottle.
13. A means of heating.

NAME:..... INDEX NO.....
SCHOOL:..... CANDIDATE'S SIGN
DATE

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BIOLOGY
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Time: 1 ¾ Hours

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INSTRUCTIONS TO CANDIDATES

- (a) Write your name and Admission number in the spaces provided above.
- (b) Answer ALL the questions in the spaces provided.

For Examiners use only

Question	Max Score	Candidates Score
1		
2		
3		
Total	40	

This paper consists of 8 printed pages.
Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.

1. Using the provided photographs; answer the following questions.
 1. Photographs;



- a) With reasons, state the kingdom to which specimen F and J belongs.

F..... (1mk)

J..... (1mk)

Reasons

F.....

.....

.....

(1mk)

J.....

.....

(1mk)

- b) Using observable features only; state the;

i) Phylum to which specimens J and F belong

.....

ii) Class to which specimens J and F belong.

J..... (1mk)

F..... (1mk)

iii) Give reasons for your answer in

(ii) Class for J above.

(3mks)

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c) (i) Name the division from which specimen K and L were obtained from. (2mks)

.....

.....

.....

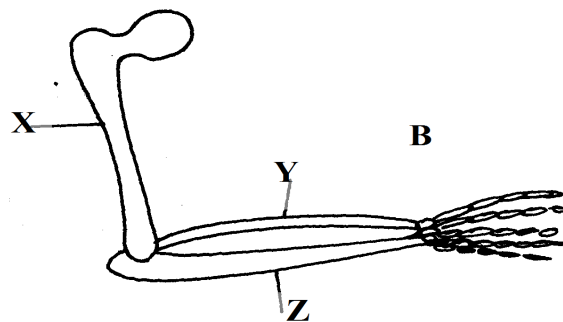
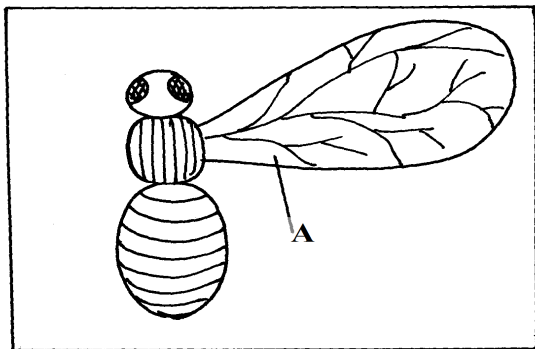
ii) Give two observable differences between members from which specimen K and L were obtained from. (2mks)

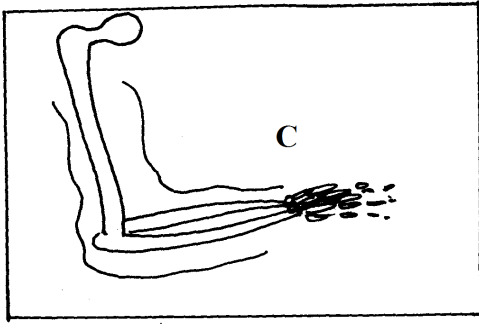
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d) You are provided with photographs A, B and C, use them to answer questions that follow.





2. (a) Identify the parts labeled X, Y and Z. (3mks)
- X.....
- Y.....
- Z.....
- (b) What common name is given to structure ref?
- (i) A and C..... (1mk)
- (ii) B and C..... (1mk)
- (c) Give a reason for your answer in b (i) and (ii) above. (2mks)

.....

.....

.....

- d) State the type of evolution that leads to emergence of structures named in 2 b (i) and (ii) above. (2mks)

.....

.....

.....

- e) Identify two differences between structures A and C. (2mks)

.....

.....

.....

- f) What is a vestigial structure? (1mk)

.....

.....

3. You are provided with solution W. Using the provided reagents; carryout possible food tests to identify food substances present in solution. W

Food substance	Procedure	observation	Conclusion
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Marking scheme.

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1. a) Kingdom plantae. (1mk)
(Rej.wrong spelling)

Reasons;

- Contains photosynthetic pigments i.e. chlorophyll.
- Indefinite growth.
- Store lipids in form of oils.
- Store carbohydrates in form of starch.
- Contains cell wall.
- Autotrophic.

(2mks)

- b) (i)Phylum Arthropoda. (rej wrong spelling)

- (ii)J-class Arachnida. (1mk)

- F-class insect (1mk)

(rej. Wrong spelling)

- (iii)-2 body parts.

- Four pairs of legs/eight walking leg

- Cephalothoraxes and abdomen.

- Simple eyes.

(Max 3mks)

- c) (i)Angiospermatophyta. (1mk)

- (ii)

Dicotyledonous	monocotyledonous
-Network venation	-Parallel venation
-Has petiole	-Has sheath-like petiole
-narrow leaf	-Broad leaf

(Max 2mks)

2.

- a) X.....Humerus✓1
Y.....Radius✓1
Z.....Ulna✓1 (rej spellings)

- b) (i) A and C.....Analogous structures. ✓1

- (ii) B and C.....Homologous structures✓1

c) Reasons for b (i) and (ii) above.

B and C-have common embryonic origin but have been modified to perform different functions.✓1

A and C-Have different embryonic origin but have been modified to perform same functions.✓ 1

d) A and C-convergent evolutions✓1

B and C-Divergent evolution✓1

e) -Wings of A originate from an exoskeleton while those of C originate from an endoskeleton✓1

-Wing of A has no pentadactyl/structure while the wing of C has pentadactyl/structure✓ 1
 f) Organs that are reduced in size and function in organism✓1
 3.

Food substance	Procedure	Observation	conclusion
Starch	-To solution W add (2drops of)iodine solution✓1	-Brown/yellow color persists/remains✓1 aCc.no color change observed.	-starch absent✓1
Reducing sugars	-to solution W, add Benedict's solution and heat✓1/boil/warm.	-color/brown changes from blue to green to yellow to orange✓1 Acc.final color. Rej-red color	-Reducing sugars present✓1
Non-reducing sugars	-To solution W add dilute hydrochloric acid, heat and cool. Add sodium hydrogen carbonate solution until fizzing stops, then add Benedict's solution and heat/boil/warm✓1	-Color changes from blue to green to yellow to orange✓1/brown. Acc.final color. Rej.red color	Non-reducing sugars present✓1
Protein	-To solution W add sodium hydroxide then copper (ii) sulphate✓1 -Rej. Heat.	-Color changes from blue to purple✓1(purple color observed)	-Protein present✓1

(12mks)