Name:.....Class:.....

Combination:.....Sign:.....

P530/3
BIOLOGY
(Practical)
PAPER 3
Nov/Dec.2023
$3^1/_4$ hours

LIGHT COLLEGE KATIKAMU (LICOKA)

UGANDA ADVANCED CERTIFICATE OF EDUCATION

END OF YEAR EXAMINATIONS

BIOLOGY PRACTICAL

S.5 Paper 3

3 hours 15 minutes

INSTRUCTIONS TO CANDIDATES:

-This paper consists of 3 questions

-Answer all questions

-Answers must be written in the spaces provided

-Additional sheets of paper must not be inserted in this booklet

FOR EXAMINERS USE ONLY

Question	Marks	Examiners signature
1		
2		
3		
Total		

Question 1 **75 MINUTES (40Marks)**

1.You are provided with a freshly killed specimen **K.**

(a) Giving reasons,classify the specimen under kingdom,Phylum and class **(06Marks)**

(i) Kingdom:

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Reasons:

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(ii) Phylum:

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Reason:

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(iii) Class:

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Reason:

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(b) Place the specimen with the dorsal side lowermost and cut off its antennae and limbs.Using a hand lense observe the lateral features of the head.Draw and label. **(14Marks)**

(c) Then turn the specimen dorsal side uppermost and examine the thoracic features used for flight.Describe their structure. **(06Marks)**

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(d) Cut off the wings.Cut along the lateral line of the body from anterior part of the body to thorax posteriorly to the 7th segement.Turn the dorsal cuticle to the right and clear any fat tissues.Draw and label the displaced structures on both cuticles and structures used for digestion,absorption and storage with the alimentary canal displaced to the left.**(24Marks)**

Question 2 **60 MINUTES (30Marks)**

You are provided with specimen M,X and Y which are plant parts.

(a) Peel specimen M into three portions which include; fore,mid and hind portion as shown below

Carefully cut the fore portion of M with a knife or scalpel put in the mortor and grind deeply using a pestle.

Decant atleast 5cm^3 and mix it with an equal volume of water.Label this O

Clean the mortor and pestle properly,cut the mid portion of M and repeat the procedure to obtain extract P

Clean the mortor and pestle properly and then repeat the procedure with the hind portion of M to obtain extract Q

Carry out Benedict's test, DCPIP test,Buiret's test on each of the extracts prepared and record your observations and deductions in the table below.

For DCPIP test record the number of drops required to decolourise DCPIP.

Table 1: **(12Marks)**

Test	**Observation/number of drops**	**Deductions**
DCPIP test	**O** **P** **Q**	
Buiret's test	**O** **P** **Q**	
Benedict's test	**O**	

	P Q	

(b) Describe the pattern of distribution of food substances in M. **(03Marks)**

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(c) Specimens X and Y are parts of the fruit at different stages of development.Peel and cut from each specimen a piece measuring 3cm X 3cm X 3cm. Using a mortor and pestle grind a piece from X into a paste, add 10cm3 of distilled water,stir well and leave to settle.After settling decant off the solution and label it Z.Repeat the procedure and use the piece from specimen Y and label it J.Carry out an Iodine test,Benedict's test and Buiret's test on each solution.Record your observations and deductions in the table 2 below. **(09Marks)**

Table 2:

Test	Observations	Deductions
Iodine test	Z:	

	J:	
Benedict's test	Z: J:	
Buiret's test	Z: J:	

(d) i) Describe the relationship between the distribution of food substances and development of the fruit from which X and Y were obtained. **(03Marks)**

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ii) From your results in table 2, comment on the suitability of specimens X and Y ad the main diet for a young child.**(03Marks)**

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Question 3 **(30Marks)**

3.You are provided with specimen D and E and solutions F,G and H.Specimens D and E are from plants of the same species but grown under different habitats.F,G and H are sucrose solutions of varying concentrations.

(a) Examine specimen D and E using a hand lense where necessary and state one difference between the specimens

(b) Label four microscope slides at their edge as D-upper epidermis,D-lower epidermis,E -upper epidermis and E-lower epidermis.From each specimen peel a small piece of upper epidermis and lower epidermis one at a time and mount in a drop of water on the corresponding microscope slide.Cover the mountings with cover slips and view them one at a time under the low power of the light microscope.For each piece of epidermis viewed,count the number of stomata visible in the surface and record your observations in the table below.

Specimen	Number of stomata upper on epidermis	Number of stomata on lower epidermis

(b) From your results in (a) and (b) obtained,suggest the type of habitat from which the specimens were obtained.

Specimen D **(02Marks)**

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Specimen E **(02Marks)**

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(c) Label three microscope slides at their edges as B,C and D and on each slide add a drop of corresponding solution.peel three small pieces of lower epidermis from specimen D and mount the piece with the out- side uppermost,in each solution on the slide.Leave the set up for 20 minutes.After 20 minutes,cover each mounted piece with a cover slip and observe under the low power of a light microscope. Draw one stoma with its adjacent cell from each slide,in the space provided. **(09Marks)**

(i) From slide B

(ii) From slide C

(iii) From Slide D

(e) Explain what is observed in each slide

(i) From slide B

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(ii) From slide C

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(iii) From Slide D

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END