NAME.....ADM/No.....CLASS……

DATE…… Signature……

BIOLOGY (231/3)
Paper 3 (PRACTICAL)
JUNE 2024 TIME: $1\frac{3}{4}$ hours

KASSU JOINT EXAMINATIONS

Kenya Certificate of Secondary Education
MARKING SCHEME

QUESTION	MAXIMUM SCORE	CANDIDATE SCORE
	14	
	13	
	13	
	40	

1.You are provided with specimen W, liquid G (Hydrogen peroxide) and 1% copper sulphate, 2M sodium hydroxide, distilled water, ethanol and iodine solution. Use them to carry out tests below.

Place five pieces of specimen W into a mortar and crush into paste using a pestle. Transfer the paste into 100ml beaker and add 30ml of water and stir then divide the solution into two equal portions in two different boiling tube. Label the portions X and Y.

b) Divide portion X into two separate test tubes.

i)To the first test tube add 2ml of hydrogen peroxide and record your observations. (1mark)

Effervescence/Fizzing/Bubbles of a colourless gas/Foam

Ii)Boil the contents of the second test tube then add 2ml of hydrogen peroxide and record your observations.(1mark)

No Effervescence/Fizzing/Bubbles of a colourless gas/Foam

a) Explain your observation in (ii) above.(2marks)

Boiling denatured enzyme catalase hence hydrogen peroxide was not broken down produce oxygen and water

b) Use portion Y to test for the food substances present using the reagents provided.

. (9marks)

Food substance	Procedure	Observation	Conclusion
Starch	*To a portion of the test solution, add iodine solution dropwise and shake*	*Solution turns blue-black*	*Starch present*
proteins	*To a portion of the test solution add equal amount of sodium hydroxide followed by copper(ii) sulphate solution dropwise*	*Solution turns purple*	*Proteins present*
Lipids	*To a portion of the test solution in a test tube add equal amount of ethanol followed by water and shake*	*No white emulsion/suspension is formed*	*Lipids absent*

1. Name the enzyme in the human digestive system required for the complete digestion of the food substance absent. (1mark)

2. You are provided with specimen Q. Observe it then compare with the photograph R shown below and answer the questions that follow.

Photograph R

(a) Name the classes of organisms represented by Q, R and P and give a reason for each one basing on observable features only (6MKS)

SPECIMEN	CLASS	REASON
Q	***Dicotyledonae***	***Flower parts occur in multiples of five***
R	***Monocotyledonae***	***Flower parts occur in multiples of three***
P	***Insecta***	***Three body parts***

(b) Specimen P probes into nectaries of specimens Q and R. State two characteristics of living organisms achieved after the process (2mks)

Nutrition

Reproduction

Locomotion

(c) Explain the adaptations of specimen in photograph R to pollination (2mks)

Brightly coloured/conspicuous; for insects to locate them at a distance;

Scented; to attract insects;

(d) remove one stamen of specimen Q then draw a well labeled diagram (3mks)

3.You are provided with photographs of specimens **P** and examine them carefully and answer the questions that follow.

Specimen P

Specimen Q

a) Name the part of the mammalian skeleton from which the specimen P and Q were obtained from. (2 marks)

P ***thoracic region***

Q ***Neck region***

b) With a reason identify the specimen represented of the photographs above

Specimen P

Identity (1mark)

Thoracic vertebra

Reason

Long neural spine

Transverse process modified into tubercular facet

Centrum modified into capitular facet

(1mark)

Specimen Q

Identity

Cervical vertebra (1mark)

Reason

Branched transverse process

State **two** ways specimen **Q** is suited to its function (2marks)

Vertebratenal canals; for passage of blood vessels and nerves

Branched transverse process; to increase surface area for attachment of neck muscles;

c) State **two** structural differences between specimen **P** and **Q** (2marks)

Specimen P	**Specimen Q**
– Vertebrateria / canals absent	– Vertebraterial canal present –
– transverse processes modified to capitular facet	– Short and branched transverse processes
– Long neural spine	– Short neural spine –

d) The actual length of the hand-lens next to specimen **Q** is 6. 5cm.Use this information to calculate the actual lateral length of specimen **P** (3marks)

e) Magnification= $\frac{image\ size}{actual\ size}$

$0.26 = \frac{5.5}{x}$

$= \frac{1.7\ cm}{6.5\ cm}$ x = 21.15cm

= x0.26