553/2
BIOLOGY
PRACTICAL
Paper 2
19th July 2022
2 Hours

Name : ……..……

Signature : …… Personal No : ……..

KAMPALA WAKISO GIANT SCHOOLS' ASSOCIATION (KWGSA)

National Joint Mock Examination 2022

Uganda Certificate of Education

BIOLOGY PRACTICAL

Paper 2

2 Hours

INSTRUCTIONS TO CANDIDATES

This paper consists of **three** *questions.*

Answer **all** *questions.*

Answers **must** *be written in the spaces provided. No additional sheets for writing should be provided. Work on additional paper(s) will not be marked.*

Coloured pencils and crayons should not used.

For Examiners' Use Only		
QUESTION	**Mark**	**Examiners initial and Number**
1		
2		
3		
TOTAL		

1. You are provided with a solutions **D** and **E**. You are required to determine the composition of **D** and the effect of solution **E** on solution **D**.

(a) Carryout the following tests on **D** to identify the food substances in **D**. Record your observations and deductions in **table 1** below. (08 marks)

	Test	**Observations**	**Deductions**
(i)	To $1cm^3$ of solution **D** in a clean test tube, add 2 drops of iodine solution		
(ii)	To $1cm^3$ of solution **D** in a clean test tube, add $1cm^3$ of benedicts solution and boil the mixture.		
(iii)	To $1cm^3$ of solution **D** in a clean test tube, add $1cm^3$ of sodium hydroxide solution followed by 2 drops of copper (II) sulphate and shake the mixture.		
(iv)	To $1cm^3$ of DCPIP solution in a clean test tube, add 10 drops of solution **D**.		

(b) Label three test tubes **1, 2** and **3** and treat them as follows;

In test tube 1, add $2cm^3$ of solution **D** plus $2cm^3$ of solution **E** plus $2cm^3$ of sodium hydroxide.

In test tube 2, add $2cm^3$ of **D** plus $2cm^3$ of solution **E** plus $2cm^3$ of dilute hydrochloric acid.

In test tube 3, add $2cm^3$ of solution **D** plus $2cm^3$ of boiled solution **E** plus $2cm^3$ of dilute hydrochloric acid. Incubate the mixture in a water bath maintained at 35^0C - 40^0C for 20 minutes. (Meanwhile you can proceed with work in this period). After this period, divide the contents in test tube **1** into two parts and carry out the following tests. Record your observations and deductions in the table below. ($8^1/_2$ marks)

	Test	Observations	Deductions
(i)	To the first portion, add 2 drops of copper (II) sulphate solution		
(ii)	To the second portion, add $2cm^3$ of benedicts solution and boil for two minutes.		
(iii)	To the contents in test tube 2, add 2 drops of iodine solution.		
(iv)	To the contents in test tube 3, add $2cm^3$ of benedicts solution and boil.		

(c) From the above tests, explain your results in;

(i) Test tube **1** (01 mark)

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(ii) Test tube **2** (01 mark)

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(iii) Test tube **3** (01 mark)

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(d) With a reason, state the nature of solution **E**.

Nature of **E** (01 mark)

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Reason

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(e) state **two** factors being investigated in the above experiment. (01 mark)

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2. You are provided with specimens **K** and **L** which are freshly killed animals. Use them to answer the questions below

(a) By giving **two** reasons for your answer in each case, state the phylum and class where the specimens belong.

Phylum (01 mark)

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Reason (01 mark)

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Class (01 mark)

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Reason (01 mark)

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(b) State **four** structural differences between specimens **K** and **L**. (04 marks)

Specimen **K**	Specimen **L**

(c) Use a hand lens, to describe the following parts of the specimens and their suitability to the mode of life of each specimen.

(i) Mouth Parts of **K.** (02 marks)

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(ii) Wings of **K.** (02 marks)

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(iii) Hind leg of **K.** (02 marks)

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(iv) Body surface of **K.** (01 mark)

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(d) Using a razor blade, cut off the head from specimen L and make a labeled drawing of the head region. (State your magnification) (06 marks)

3. You are provided with Specimens **O, P, Q** and **R** which are fruits of different plants.

(a) State **two** reasons that shows they are fruits. (02 marks)

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(b) Cut specimens **O** and **Q** transversely and remove an ovary from specimen **P**. State any **two** observable features of each of the specimens **P, Q** and **R.** (04 marks)

(i) Specimen **O**

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(ii) Specimen **P**

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(iii) Specimen **Q**

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(iv) Specimen **R**

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(c) Using the above features, construct a dichotomous key to identify the specimens **O, P, Q** and **R** (03 marks)

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(d) Describe the mode of dispersal of each of the specimens **P** and **R**.

(i) mode of dispersal of **P**. (02 marks)

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(ii) mode of dispersal of **R**. (02 marks)

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(e) State any **three** structural differences between specimens **O** and **Q**.

(03 marks)

Specimen **Q**	Specimen **O**

(f) Make a labeled drawing of one half of specimen **P** containing seeds. State your magnification. (06 marks)

END