553/2

BIOLOGY

(Practical)

Jul/Aug 2019

2 Hours

MUKONO EXAMINATION COUNCIL

Uganda Certificate of Education

BIOLOGY PRACTICAL

Paper 2

2 Hours

INSTRUCTIONS

*Answer **all** questions.*

Drawings and answers should be made in the spaces provided.

Use sharp pencils for your drawings.

*Crayons and coloured pencils should **NOT** be used.*

No additional sheets of writing paper are to be inserted in the booklet.

QUESTION	MARKS	SIGN & EXAMINER'S No.
1		
2		
3		
TOTAL		

1. You are provided with the following specimen T, Solution A solution B, Solution C; using a cork borer produce 4 cylinders of tissues from specimen T, cut the cylinders to a uniform length of 4cm each

   (ii) Place one cylinder of tissue in each solution A, B, and C and leave one exposed to air leave the set up for 1 hour.

   (iii) Remove the tissue cylinders and dry them gently using a filter paper to remove excess solution ;

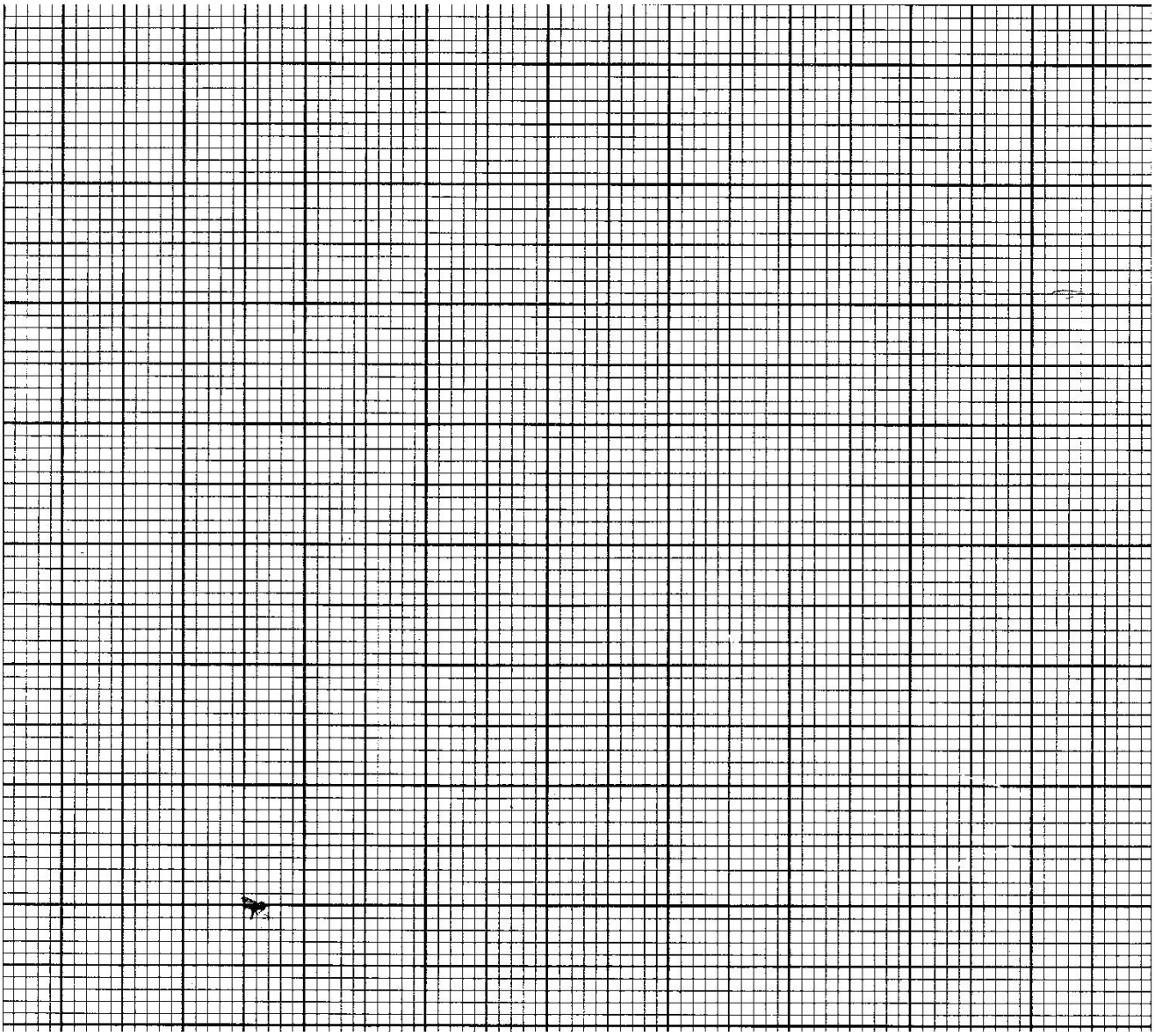
   - measure and record the final length
   - feel each cylinder and record their texture in the table below
   - Calculate the percentage change in length for each cylinder and record in the table 1 below. ***(8marks)***

Cylinder of potato	Initial length	Final length	Percentage change in length	Texture
Solution A	4.0			
Solution B				
Solution C				
Air				

(a) Name the process responsible for your results above *(1mark)*

(b) Plot a graph of percentage change in length varying with sucrose solutions

(7marks)



(c) Explain the observations made in the cylinder placed in each of the solution:

Solution B *(2marks)*

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Solution C *(2marks)*

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(d) Arrange solution A, B and C in order of increasing osmotic potential

(1mark)

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(e) What is the significance of your observations about the role of water in plant tissues

(1mark)

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2. You are provided with specimen F. Study it and answer the questions that follow

(a) (i) To what phylum and class does specimen F belong

Phylum ***(1Mark)***

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Class ***(1Mark)***

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(ii) Identify three structural features which are used to place specimen F in the class you have given

(3Marks)

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(b) (i) Suggest the habitat of specimen F ***(1Mark)***

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(ii)using observable features only, describe the structural adaptations of specimen F to its habitat ***(4Marks)***

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(c) Cut and remove the operculum from one side

(i) Draw and label the features observed from the cut side.

(4Marks)

(ii) Carefully cut out and remove the gill. Draw and label one gill removed. ***(4Marks)***

(iii) In what ways is the gill labeled above adapted for its function ***(3Marks)***

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3. You are provided with specimen N, O,P,Q. Examine the specimens carefully and answer the following questions.

(a) List the specimen which are

(i) wind pollinated ***(1Mark)***

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(ii) insect pollinated ***(1Mark)***

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(b) Suggest the mechanism of pollination of specimen Q and give **five** adaptive features to this mechanism.

Mechanism…… ***(1Mark)***

Adaptation …… ***(5Marks)***

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(c) Give 3 structural differences between specimen **N** and **P**

(3Marks)

Specimen **N**	Specimen **P**

(d) Make a longitudinal section through specimen **N**. Draw and label ***(8Marks)***

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