

# MOKASA 2 JOINT EXAMINATIONS

## MARKING SCHEME

**BIOLOGY (231/3)**

**Paper 3 (PRACTICAL)**

**JULY/AUGUST 2018**

**TIME: 1<sup>3</sup>/<sub>4</sub> hours**

1. You are provided with the following solutions labelled A and B, cork borer, scapel and specimen labelled X, mortar and pestle, iodine solution, 10% sodium hydroxide solution, 1% copper sulphate solution a ruler, spatula, beaker 10ml measuring cylinder, three test tubes, distilled water and a dropper.

- a)i) Cut specimen X into two equal parts, crush one of the parts to make a paste and transfer three spatulaful of the paste into a test tube and add 2ml of distilled water. Decant the mixture into a clean beaker. Using the reagents provided carry out food test. (6 marks)

Food substance	Procedure	Observation	Conclusion
	Add 2 drops of iodine solution to equal amount of food substance x	Iodine solution turned to blue black	Starch present
	Add 2 drops of sodium hydroxide solution to the equal amount of food substance and add 3 drops of copper II sulphate solution	The blue colour of copper II sulphate solution retained	Proteins absent

- ii) Name the deficiency disease that a child will suffer from if is fed only on above food for a longer period of time. (1 mark)

**Kwashiokor**

- b) Using a cork borer provided make two equal strips of 2cm from the remaining part of specimen x, put one of them in solution A and the other in solution B for about 25 minutes and remove them from the solutions.

- (i) State three comparative observations between the two strips (3 marks)

The strip that was in solution A	The strip that was in solution B
<b>Rough</b>	<b>Smooth</b>
<b>Soft</b>	<b>Hard</b>
<b>Flexible</b>	<b>Regid</b>
<b>Reduces in length</b>	<b>Increases in length</b>

- ii) Account for the above observations (3 marks)

solution A is hypotonic to the cell sap of x, its cells lost water to the solution by osmosis. Solution B is hypotonic to the cell sap of x and therefore the cells gained water by osmosis.

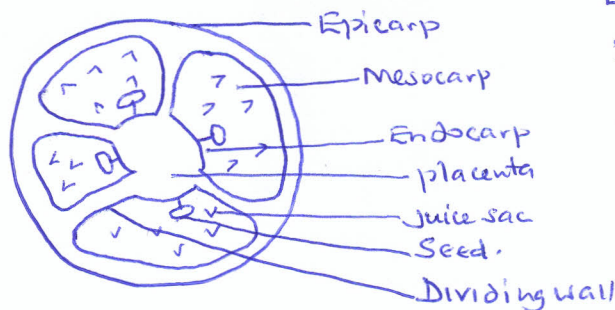
iii) Describe solution A in relation to the cell sap of specimen X.

Solution A ...**Hypertonic** ..... (1 mark)

2. a) Cut specimen K transversely into two equal parts and use it together with specimen labelled L to fill the table below.

	Specimen K	Specimen L
Type of fruit	<b>Berry</b> (1 mk)	<b>Legume</b> (1 mk)
Type of placentation	<b>Axile</b> (1 mk)	<b>Marginal</b> (1 mk)
Mode of dispersal	<b>Animal dispersal</b> (1 mk)	<b>Self explosive</b> (1 mk)
Reason for the above mode of dispersal	<b>Succulent Scented</b> (2 mks)	<b>Has lines of weakness (sutures)</b> (1 mk)

- b) Draw and label a cross-section of one of the parts of specimen K (4 marks)



Labelling - 3 mks

Drawing - 1 mark

NB

1. Drawing

- outer lines should be continuous
- NO shading.
- should be proportional

2. Labelling

- The label lines should touch the part of the drawing.
- Label line should be continuous

3. You are provided with specimen labelled W and Z. Use them to answer the questions below. Identify the specimens and name the part of the body where they are found. (4 marks)

	Name	Part of the body
i) W	<b>Thoracic vertebra</b>	<b>Thoraxis/chest region</b>
ii) Z	<b>Scapula</b>	<b>shoulder</b>

- b) Identify the part labelled a, b and c on specimen W (3 marks)

a **Centrum**

b **Transverse process**

c **Neural spine**

- c) List down three adaptation of specimen Z to its function (3 marks)

**Has spine for attachment of muscles**

**Has acromion and metacromion for muscle attachment**

**Has glenoid cavity for articulation with the head of the humerus**

- d)i) Name the joint that is formed at the part labelled M on the specimen Z (1 mark)  
**Ball and socket**
- ii) Name the joint between specimen W and another specimen of the same kind (1 mark)  
**Gliding/sliding**