

THYOLO DISTRICT MOCK EXAMINATION

2023 MALAWI SCHOOL CERTIFICATE OF EDUCATION

BIOLOGY

PAPER II

(Practical)

Subject Number: M022/II

PROVISIONAL MARKING SCHEME

1. The marking scheme is not final
2. Answers can be added or modified
3. Use relevant books or sources to supplement or modify the answers

Section A (20 marks)

Question one.

- Choose an area to be investigated. ^{1/}
- Fix two pegs 100 m apart ^{1/} using a hammer or a stone ^{1/}
- Tie a rope or a string ^{1/} to stretch between the two pegs ^{1/}
- Identify each species of plant touching the rope (or growing directly underneath the rope) ^{1/}
- Count the plant species identified ^{1/}
- Record the number of the identified plant species ^{1/}
- Repeat identifying, counting and recording the number of each species of plant touching the line for several times ^{1/} and find the average ^{1/}

OR

- Select an area in which the plant species to be sampled are found ^{1/}
- Mark the area using pegs ^{1/}
- Estimate the size of the marked area (in square metres) ^{1/}
- Tie a string or rope between the two pegs ^{1/}
- Select stations at a regular interval along the rope ^{1/}
- Count the number of plants of the selected plant species ^{1/} using a quadrant in each station ^{1/}
- Calculate the average number of plant species in one square metre ^{1/} by dividing the number of plant species counted ^{1/} by the area covered by the belt ^{1/}



Question two

- Cut three pieces of liver into the three cubes ^{1/}
- Put 10 ml of hydrogen peroxide into the three test tubes labelled A, B and C ^{1/}
- Cut one cube into equal pieces ^{1/}
- Crush the second cube in a mortar using a pestle (until it forms fine pieces) ^{1/}
- Place the whole liver cube into test tube A ^{1/} and record the time taken for the foam produced to rise up ^{1/} and reach the mouth of the test tube ^{1/}
- Repeat the procedure by how placing the cut pieces of the liver into test tube B and record the time ^{1/}
- Repeat the procedure by placing the crushed pieces of the liver into test tube C and record the time ^{1/}
- It would be expected that the foam produced in the test tube C would be faster than in the other two test tubes ^{1/}
- The results show that enzymes act faster on substrate with smaller size to volume ratio ^{1/} than on the substrate with large size ^{1/}

Section B (20 marks)

Question three

(a)

Stripe in salt solution	Bend easily
Stripes in water	Difficult to bend

(1 mark) for any one

(b) i. Water pass out of them ^{1/} by osmosis ^{1/} and become flaccid (lose turgor) ^{1/} **(3 marks)**

ii. Water enters them ^{1/} by osmosis ^{1/} and become rigid (turgid) ^{1/} **(3 marks)**

(c)

- Length of potato stripes
- Type of stripes
- Time taken (for observation)
- Volume of liquid

(3 marks) for any three



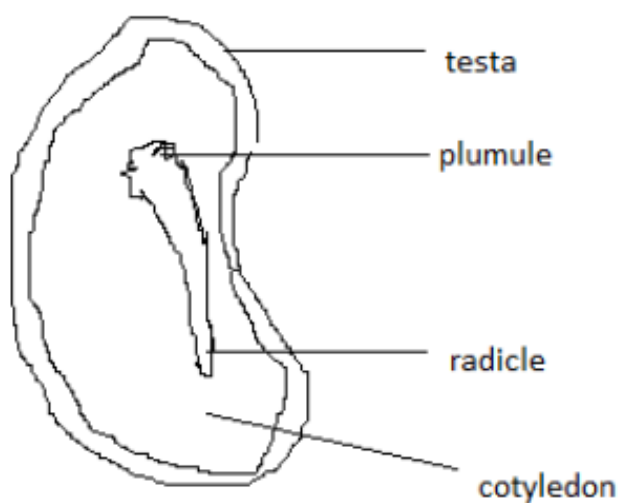
Question four

(a)

M	N
Has two cotyledons	Has one cotyledon
Has one scar	Has two scars

(1 mark) for any one

(b) i.



(1 mark) for correct drawing

(1 mark) each for the labels

(3 marks)

ii. $\text{Magnification} = \frac{\text{length of the drawing}}{\text{length of the specimen}}$ (1 mark)

$= \frac{\text{---}}{8 \text{ cm}}$ (1 mark)

$= \times \text{---}$ (1 mark)

(c) i. Benedict's solution (1 mark)

ii. Sucrose (1 mark)