EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

BIOLOGY **6884/04**

PAPER 4 Alternative to Practical **October/November 2019**

Confidential

MARK SCHEME

{6884/04}

MARKS: 40

This document consists of **3** printed pages.

 [Turn over

1 (a) (i) description:

the inner surface of the plastic bag is wet/ has water droplets; [1]

explanation:

ref. to transpiration;

water absorbed by roots conducted to leaves;

lost as water vapour through stomata;

ref. to condensation; [max. 3]

(ii) to ensure enough/more water is produced/released;

to increase surface area for transpiration; [2]

(iii) increasing rate of transpiration;

allows stomata to open;

so that water droplets can be seen on the inside of the plastic bag; [max. 1]

(iv) to allow time for transpiration to occur/ for water droplets to form; [1]

(b) (i) all three correct ± 1 mm;

mm; [1]

(ii) sum of length of three leaves ÷ no. of leaves +

correct answer; [1]

(iii) clear outline + realistic/ proportional;

veins shown;

size x2 of D ± 2mm; [3]

(iv) broad leaves;

branching/reticulate/lateral/network/veins; [2]

(c) (i) more chlorophyll in spaced out spinach/ darker green;

more photosynthesis can occur;

less magnesium where seedling grew;

ref. to competition; [3]

(ii) layer of wax/cuticle;

reduces evaporation of water; [2]

[Total: 20]

2 **(a)** all 5 correct measurements; award 1 mark for 3 or more correct measurements [2]

(b) lime water turns cloudy/milky;

gas is carbon dioxide;

from respiration; [3]

(c) orientation;

axis with correct labels and units;

even scale + large size (at least half of the grid);

correct plotting of data points;

joining of points with straight lines; [5]

(d) distribute/mix the yeast uniformly with glucose;

to speed up reaction/increase collisions of particles/contact/surface area ; [2]

(e) less increase in height/ less froth produced; [1]

(f) different concentrations of glucose;

Any two specified variable e.g. temperature, volume of reactants, same size of balloon;;

measure the volume of froth at a given time; [4]

(g) using a measuring cylinder/ syringe;

ref. to displacement of water in cylinder/ syringe emptied of air;

connect delivery tube from test tube to syringe/ measuring cylinder;

wait until no more bubbles are released;

record the volume of air as plunger is displaced in a gas syringe/ as water is displaced in a measuring cylinder; [max. 3]

[Total: 20]