EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

BIOLOGY **6884/04**

PAPER 4 Alternative to Practical **October/November 2020**

Confidential

MARK SCHEME

{6884/04}

MARKS: 40

This document consists of **5** printed pages.

[Turn over

MARKING

1. Mark crossed out answers when nothing else has been written.

2. If the candidate has left an answer blank, record this as NR (no response) in the marks column.

3. Apply the agreed final mark scheme, making professional informed judgements about what the candidate has written. You need to decide if the point made is equivalent to the point in the mark scheme, or if it is not, based on your knowledge of the subject and understanding of the mark scheme.

GENERAL NOTES

Mark Schemes will use these abbreviations:

- ; separates marking points
- / separates alternatives for a marking
- R reject
- A accept (for answers correctly cued by the question, or
- AW alternative wording (where responses vary more than usual)
- MP mark point- used in guidance notes when referring to numbered marking points
- ORA or reverse argument/reasoning
- OWTTE or words to that effect
- I ignore/irrelevant – this response gains no mark, but any following correct answers can gain marks
- ( ) the word/ phrase in brackets is not required to gain marks but sets context of response for credit. e.g. (waxy) cuticle. Waxy not needed but if it was described as cellulose cuticle then no mark.
- <u>small</u> underlined words- this word only (grammatical variants excepted)
- D, L, T, Q quality of drawing/ labelling/ table / writing as indicated by mark scheme
- max indicates the maximum number of marks that can be given

INSTRUCTIONS FOR EXAMINERS

Correct biology

Always credit correct statements even if they follow incorrect statements. Usually apply this to sentences, but use judgement if candidate writes lengthy sentences.

Marking questions where a specified number of responses is indicated

Mark first answer on each row unless considered neutral.
If several answers on first line and no answers on subsequent lines, mark all answers on first line up to the number specified in the question.

Do not mark answers in excess of number indicated by the question.

Calculations

Award full marks for correct answer with units even if no working shown.

If units not given, then award one mark for numerical answer.

If no answer or incorrect answer award one mark for correct working.

Errors carried forward

Examples:

If structure is identified incorrectly, then apply error carried forward (ecf / transfer error (TE)) rule for subsequent answers.

If first answer using information provided is incorrect allow ecf / TE for next question.

Vague answers

Do not allow ‘particles’ in place of molecules

Crossed out work

Mark crossed out work if there is no second attempt at the answer. Otherwise ignore it;

Watch for:

- context and scientific correctnesss (don’t just spot key words / treat separate sentences independently).
- spellings that matter (e.g. mitosis / meiosis, glucagon/ glycogen, ureter / uterus / urethra;
- spellings / grammatical constructions that don’t matter (for many candidates, English is their 2nd or 3rd language);
- lists that include wrong points (e.g. if 3 points are needed and 5 given, mark the first 3 only);
- Only one mark should be awarded per numbered line, unless some of the lines are left blank, in which case the 2nd or 3rd idea on the first line can be marked as well;
- Mark all the candidate’s answers wherever they have written them.

1 (a) **Table 1.1**

time/min	observation	conclusion
15	black	starch present
30	black	starch present;
45	dark blue	less starch present
60	blue	very little starch;
75	brown	no starch/presence of maltose
90	brown	no starch/ presence of maltose;

Any 2 correct 1 mark [3]

(b) the powder would dissolve quicker/ more quickly/ faster;
all the powder would dissolve with no sediment;
ensures the same/ uniform/ consistent concentration of starch in all test-tubes; [2]

(c) to mix the contents of the solution. [1]

(d) all starch digested;
enzymes had enough time to digest starch;
to maltose; [max 2]

(e) control/ reference; [1]

(f) time; [1]

(g) same number of drops of starch/ amylase / iodine, solution /AW e.g. same volume;
same starch/ amylase, solution used;
amylase and starch solution mixture left for same time duration/ 2minutes; [max 2]

(h) as the time increases, more starch is digested/ less starch is present; [1]

(i) repeat the investigation;
increase the sample size;
use a fixed volume of, iodine/amylase/ starch, solution; [max. 2]

(j) blue/black;
enzyme denatured;
no starch digested; [3]

(k) ref. to different pH;
ref to at least 5 different pH values;
same volume of starch/ same volume of iodine used/ amylase AVP;
measure the time taken for the colour change to occur at each pH;
the less time taken for colour change to occur will mean that particular pH is most suitable/ ORA/ the pH giving the fastest time for the colour change to occur is the optimum pH;

[max. 4]

[Total: 22]

2 **(a)** **(i)** **G**- *Prunus persica;*
H- *Psidium guajava;*
J- *Brassica oleracea;*
K- *Persea americana;*
L- *Solanum lycopersicum;* [5]

(ii) network of/reticulate/ branching, veins;
broad; [2]

(iii) large+ realistic (lobed);
continous outline;
correct label to any vein; [3]

(iv) correct measurement (for both) in mm; [1]
correct substitution;
correct magnification with x; [2]

(b) **(i)** upper shiny/lower dull- more cuticle;
minimise water loss on upper surface; ORA;
upper darker/lower pale- more chlorophyll/ chloroplasts on upper surface/ ORA;
ref. to efficient absorption of light/more photosynthesis; [max 3]

(ii) more stomata on lower surface/ ORA;
more gas, exchanged/released, from stomata; [2]

[Total: 18]