EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

PHYSICAL SCIENCE **6888/04**

Paper 4 **October/November 2020**

Confidential

MARK SCHEME

{6888/04}

MARKS: 40

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

 [Turn over

INTRODUCTION TO 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 response 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;

1	**(a)**	**(i)**	temperature decreases with time;	[1]
		(ii)	endothermic;	[1]
			heat is absorbed from the surroundings;	[1]
		(iii)	change in temperature/white ppt formed;	[1]
		(iv)	thermometer should not touch the sides of the container / avoid error of parallax;	[1]
	(b)	**(i)**	more than half of each axis used;	[1]
			all points correctly plotted;	[1]
			smooth curve;	[1]
		(ii)	33 ^{o}C; **A** slightly less than to account for cooling	[1]
			dilute sulfuric acid is used up/ sulfuric acid is a limiting reagent; **A**- solution starts to cool to room temperature as sulfuric acid is used up;	[1]
	(c)	**(i)**	**C:** bubbles are observed;	[1]
			lime water turns milky/ white ppt;	[1]
		(ii)	carbon dioxide;	[1]
		(iii)	increase the concentration/ increase temperature/stirring/ shaking/ agitation; **R** increase in pressure and surface area	[1]
	(d)	**(i)**	white precipitate;	[1]
		(ii)	filter (to remove filtrate);	[1]
			wash the precipitate with (distilled) water;	[1]
			dry (between two filter papers); **A** dry by evaporation	[1]
		(iii)	it is decomposed by light; AW	[1]
			a darker/ grey colour observed/ silver colour observed;	[1]

2 **(a)** 14.8 and 10.7; seen [1]

4.1 cm; [1]

(b) 2.05; [1]

(c) 4.7±0.1; [1]

(d) $V = \pi \times 2.05^2 \times 4.7$; [1]

62.05 cm^3; [1]

(e) **(i)** 60 cm^3; [1]

(ii) measuring cylinder placed on flat surface;

reading taken from bottom of meniscus; **A** parallax error/horizontal level reading

[max 1] [1]

(f) 62.05 – 60; ecf [1]

2.05; [1]

(g) **(i)** use of measuring cylinder with known volume of water V_1; [1]

Immerse glass in water and record new volume V_2; [1]

$V_2 - V_1$; [1]

OR

fill the eureka can with water until the water overflows;

place the measuring cylinder under the spout, immerse the glass and collect the water that overflows;

amount of water displaced is equal to the volume of glass;

(ii) water remaining in glass decreases the internal volume; [1]

(h) 2.05−0.4; [1]

$\frac{2.05 + 3.0}{2}$; [1]

2.53; [1]

(i) measure mass of empty glass; [1]

measure mass of glass with water; [1]

then take the difference between the two masses; [1]