



Rewarding Learning

General Certificate of Secondary Education

Biology

Unit 3 Practical Skills Assessment

Booklet B

Higher Tier

[GBL34]

Assessment

MARK SCHEME

General Marking Instructions

The main purpose of the mark scheme is to ensure that each question is marked accurately, consistently and fairly.

Mark schemes are not intended to be totally prescriptive. No mark scheme can cover all the responses which students may produce. In the event of unanticipated answers, teachers and lecturers are expected to use their professional judgement to assess the validity of answers.

Mark Scheme Annotation

- The use of a solidus (/) denotes alternative answers which can be awarded within the same question (or marking point in a question worth more than one mark).
- The use of a semi-colon (;) denotes separate marking points. These are particularly relevant when separating the different marking points in a question worth more than one mark.
- Part of an answer within brackets indicates that this part is not essential to gain credit – the bracketed section is usually to set context or for the purpose of completeness.
- Some answers are shown as 'Any **two** from' (or any number between two and six). This means that any two (or other specified number) answers from the bullet-pointed list can be credited in this question or question part.

Marking Calculations

Full marks are normally awarded for the correct answer – irrespective of whether working out has been shown (even when asked to show working out.) The principle of 'error carried forward' (ECF) usually applies in that if a student makes a mistake in the first part of a three-mark, three-stage calculation then the final two marks can be awarded if the second and third stage processes are carried out correctly. The same principle applies to a mistake at any stage in a calculation.

Marking QWC question

See guidance in the mark scheme at the QWC question and also the section in the subject-specific guidance.

			AVAILABLE MARKS		
1	(a)	More reliable results/reduce the impact of anomalies;	[1]	6	
	(b)	Pupil D;	[1]		
	(c)	(i)	Distance at which ruler was caught decreased with each test; 195 – 120/120 – 90;		[2]
		(ii)	C; anomalous result/described/110 – 300;		[2]
2	(a)	Removes all the oxygen/sterilised; so the yeast are not killed;	[2]	9	
	(b)	Anaerobic;	[1]		
	(c)	CO ₂ ;	[1]		
	(d)	Any three from: more bubbles; more yeast/cloudy; warmer; more alcohol; the mass of glucose decreased;			[3]
		(e)	When mass of glucose increased from 20 to 25 g; maximum number of bubbles remained at 22/levels off at 22;		[2]
	3	(a)	3 palisade cells drawn in correct position; 1 spongy cell drawn in correct position; Cells correct size and shape;		[3]
(b) (i)		Lots of air spaces/larger air spaces/no stomata on layer D;	[1]		
		More access to light/CO ₂ /more photosynthesis;	[1]		
(b) (iii)		Leaf 1 does not have stomata/stoma, leaf 2 does; leaf 2 has no waxy cuticle, leaf 1 has; need comparison	[2]		

		AVAILABLE MARKS
4	(a) Prevent evaporation of water from the flask ;	[1]
	(b) (i) 9.5 and 0.5; 9.5 ÷ 0.5; 19;	[3]
	(ii) Light/dark;	[1]
	(iii) Stomata open in light; more evaporation/more diffusion/more photosynthesis; or more photosynthesis; more water used; accept converse for dark	[2]
	(iv) 1 and 3;	[1]
	(c) Humidity; as humidity increases, water loss decreases; lower diffusion gradient; Accept converse	[3]
		11
5	(a) (i) Remove any spilled starch or glucose;	[1]
	(ii) Glucose present; starch absent;	[2]
	(iii) Glucose molecules small enough to diffuse through; starch too large;	[2]
	(b) • Visking tubing; • water;	[2]
		7

6 (a) Indicative content

1. Quadrat;
2. Use tape measure;
3. From woodland to field;
4. Systematic sampling/described/place quadrat at sample points;
5. Identify the species/use a key;
6. Calculate/estimate percentage cover;

Band	Response	Mark
A	Candidates must use appropriate, specialist terms throughout to describe and explain their conclusions using at least 5 of the points . They use good spelling, punctuation and grammar and the form and style are of a high standard.	[5]–[6]
B	Candidates use some appropriate, specialist terms throughout to describe and explain their conclusions using at least 3 of the points . They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	[3]–[4]
C	Candidates make little use of specialist terms throughout to describe and explain their conclusions using at least 1 of the points . The spelling, punctuation and grammar, form and style are of a limited standard.	[1]–[2]
D	Response not worthy of credit.	[0]

[6]

(b) (i) Buttercups; [1]

(ii) Greater biodiversity in the woodland;
 most number of species present;
 5 vs 3/2 more species present in woodland;
 Accept converse [3]

(iii) Any **two** from:
 light; temperature; moisture; soil pH; wind; [2]

(iv) Any **two** from:
 competition;
 grazing;
 trampling;
 disease; [2]

AVAILABLE
MARKS

14

			AVAILABLE MARKS
7	(a) Same volume of indicator; no pondweed/plastic pondweed;	[2]	
	(b) Red;	[1]	
	(c) Purple;	[1]	
	(d) Respiration takes place; no photosynthesis; increase in carbon dioxide concentration;	[3]	
	(e) Concentration of carbon dioxide produced is the same as the level of carbon dioxide used; rate of photosynthesis is equal to the rate of respiration; compensation point;	[3]	
	(f) Pondweed in A has more leaves; accept converse for B and C	[1]	
8	(a) (i) Kills/stops growth of bacteria;	[1]	
	(ii) 60 mg ml ⁻¹ ; Clear area measures 11 arbitrary units;	[2]	
	(b) 25 °C; not culturing human pathogens/kills human pathogens;	[2]	
Total			70