Rewarding Learning

General Certificate of Secondary Education
2014

GCSE Biology

Unit 1

Foundation Tier

[GBY11]

FRIDAY 6 JUNE, AFTERNOON

MARK SCHEME

General Marking Instructions

Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

				AVAILABLE MARKS
1	**(a)**	Sun/light;	[1]	
	(b)	Feeding/consumption/transfer of chemicals (nitrogen/carbon)/ transfer energy;	[1]	
	(c)	Any **two** from: Trap light/photosynthesise; [1] Make food (/glucose/sugar/starch)/provide energy for/to other animals/organisms; [1]	[2]	4
2	**(a)**	A – Stomach;	[1]	
		B – Colon;	[1]	
		Reject: large intestine		
	(b)	**(i)** **Ileum** – Digestion (/specific example described)/absorption of digested foods (/specific example described); Accept: Allows digested food to pass into blood;	[1]	
		(ii) **Rectum** – Store faeces/undigested materials (/unabsorbed foods);	[1]	4
3	**(a)**	Light (intensity);	[1]	
	(b)	**(i)** Oxygen;	[1]	
		(ii) Bubbles are not all same size/are different sizes;	[1]	
		(iii) Glucose/sugar/starch;	[1]	
	(c)	Chloroplast;	[1]	5
4		Chloroplast – ✗; ✓; [2] Cell wall – ✗; ✓; [2] Cell membrane – ✓; [1] Nucleus – ✗; [1]	[6]	6

					AVAILABLE MARKS
5	**(a)**	**(i)**	15;	[1]	
		(ii)	Soda bread; [1] greater rise in temperature of water/more energy; [1]	[2]	
	(b)		Any **three** pairs from: More protein; More growth; **or** Less carbohydrate; Reduced risk of obesity/diabetes; **or** Less fat; Reduced risk of obesity, CHD, CVD; **or** Increased fibre; Reduced risk of constipation/bowel cancer; **or** Less salt; Reduced risk of heart disease/CVD/heart attack/high blood pressure/stroke; Award an explanation only once and when linked to correct, appropriate evidence.	[6]	9

						AVAILABLE MARKS
6	(a)	(i)	A – Respiration;		[1]	
			B – Photosynthesis;		[1]	
			C – Fossilization;		[1]	
		(ii)	**Traps** carbon in fossil fuels;		[1]	
	(b)	(i)	Any **two** from: Respiration; Burning fossil fuels; Deforestation;		[2]	
		(ii)	Appropriate line of best fit;		[1]	
		(iii)	Any **two** from: Loss of habitat; Extinction of (Arctic) species/named example (polar bear); Flooding/rising sea levels;		[2]	9
7	(a)		The range of living organisms/species/animals **and** plants;		[1]	
	(b)	(i)	Quadrat;		[1]	
		(ii)	Pitfall trap;		[1]	
	(c)	(i)	Accurate plots;	[1]		
			Shading;	[1]	[2]	
		(ii)	More **of both** species/biodiversity in deciduous/B woodland;	[1]		
			More crawling insects than plants in **both** woodland areas;	[1]	[2]	
		(iii)	Light ✓;	[1]		
			Soil water ✓	[1]		
			Minerals ✓;	[1]	[3]	10

AVAILABLE MARKS

8 **(a)** Iodine (solution); [1]

(b) Temperature; [1]

(c) Starch is broken down/digested; [1]

(d) **(i)** Sugar/glucose/reducing sugar; [1]

(ii) Heat (Benedict's);
Blue; to brick red; [3]

(e) **Indicative content:**
1. Enzyme C;
2. (C) breaks down protein molecule;
3. into amino acids;
4. active site (of C);
5. because C fits/complementary/shape to amino acid sequence in protein (when they collide);
6. Lock and key;
7. Enzymes specific;
8. Active sites of other enzymes (/A and C) don't fit any of the food molecules;

Response	**Marks**
Candidates **must use appropriate, specialist terms** throughout **using at least FIVE of the above points**. They use good spelling, punctuation and grammar and the form and style are of a **high standard**.	[5]–[6]
Candidates use **some appropriate, specialist terms** throughout **using THREE of the above points**. They use **satisfactory** spelling, punctuation and grammar and the form and style are of a **satisfactory standard**.	[3]–[4]
Candidates make **little use of specialist terms** throughout **using some or all of the above points**. The spelling, punctuation and grammar, form and style are of a **limited standard**.	[1]–[2]
Response not worthy of credit**.**	[0]

[6]

13

					AVAILABLE MARKS
9	**(a)**	A – Trachea;		[1]	
		B – Rib;		[1]	
	(b)	Breathe in – diaphragm contracts/flattens;	[1]		
		Breathe out – diaphragm relaxes/moves up/becomes dome-shaped;	[1]	[2]	4
10	**(a)**	A – Iris;		[1]	
		B – Pupil;		[1]	
	(b)	**(i)** B – pupil larger;		[1]	
		(ii) More light enters eye;	[1]		
		So an image can be formed/seen on retina;	[1]	[2]	5
11	**(a)**	As the distance (from the centre) increases, the concentration of SO_2 decreases;		[1]	
	(b)	Accept: a small/constant (average) number of lichen species remain/are found/live/exist near the city centre;	[1]		
		Lichen species does not become 0 in city centre;			
		Between 0 and 2 km;	[1]	[2]	
	(c)	Burning fossil fuels/petrol/diesel (in vehicles)		[1]	
	(d)	Indicator (species);		[1]	5
12	**(a)**	0.10 – 0.09 = 0.01;	[1]		
		(0.01 × 100) ÷ 0.10 = 10%	[1]	[2]	
		Accept 10% as [2]			
	(b)	Red lettuce;	[1]		
		Lose 0% of their vitamin C (when stored for 10 days);	[1]	[2]	
	(c)	**(i)** (20 ÷ 100) × 60 = 12;		[1]	
		(ii) 12 ÷ 50 **or** 24%;		[1]	6
		E.c.f.: Answer **(i)** × 2;			
				Total	**80**