Rewarding Learning

General Certificate of Secondary Education
2015–2016

Science: Single Award

Unit 1 (Biology)

Foundation Tier

[GSS11]

TUESDAY 17 MAY 2016, 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.

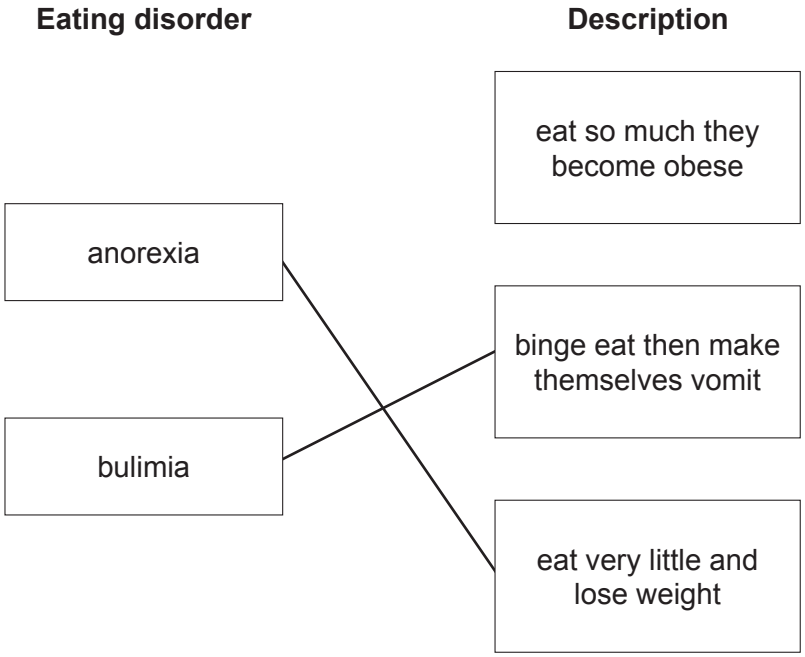
It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience 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)		

Food type	Function in the body
carbohydrate [1]	gives us energy
protein	growth and repair [1]
calcium [1]	for strong teeth and bones

[3]

(b)



[2] 5

2 **(a)** Light [1] phototropism [1] [2]

(b) **(i)** Carbon dioxide [1] oxygen [1] [2]

(ii) A – E – D – B
(all correct = 2; any two correct in sequence = 1) [2]

(iii) To remove the chlorophyll/green colour [1]
so that the colour change/iodine is more easily seen [1] [2] 8

3 **(a)** **(i)** The soup is contaminated/gone 'off' [1]

(ii) The swan neck traps microorganisms [1]
therefore they cannot enter the soup [1] [2]

(iii) Pasteur [1]

(b) They trap microorganisms/cause microorganisms to stick to them [1]
preventing (microbes) entering the body [1] [2] 6

					AVAILABLE MARKS
4	(a)	(i)	4 units	[1]	
		(ii)	He drank a lot/5 units on the one occasion/day 4	[1]	
	(b)		Violence/family breakup/damaged relationships/absence from work/drink driving/cost to health service/anti-social behaviour	[1]	
	(c)		Drink on fewer/only on special occasions [1] Drink less on each occasion, e.g. low alcohol drinks, stick to limits [1]	[2]	5
5	(a)		Type 2 is increasing over time [1] Both/either are increasing at a faster rate over time [1]	[2]	
	(b)		Type 1 is usually contracted when a child/is not linked to lifestyle/is treated with insulin/body does not produce insulin/Type 2 usually contracted when older/linked to lifestyle (or explained)/is usually treated through change to lifestyle (and tablets)/body produces insulin but fails to work properly	[1]	
	(c)		Damage to eyesight/kidney damage/heart disease/stroke	[1]	4
6	(a)	(i)	Discontinuous	[1]	
		(ii)	Both bars correct [2] one bar correct [1]	[2]	
	(b)	(i)	Gametes correct [1] offspring correct [1]	[2]	
		(ii)	Children with genotype ff circled	[1]	6
7	(a)		Any **two** from: • a non-native species/introduced by man • out-competes other (native) species • spreads (rapidly) across countryside/reproduces rapidly	[2]	
	(b)	(i)	150 – 15 [1] 135 [1]	[2]	
		(ii)	10%	[1]	
		(iii)	195–205	[1]	
	(c)	(i)	Prevents/reduces other plants' growth [1] not enough light/or other resource described [1] for photosynthesis/explanation of effect of reduced resource [1]	[3]	
		(ii)	Increased	[1]	
	(d)		Grey squirrel (or other suitable example)	[1]	11

				AVAILABLE MARKS
8	(a)	(i)	Change [1] in gene/chromosome/DNA [1] [2]	
		(ii)	Weakened/dead/modified [1] flu virus [1] [2]	
		(iii)	It takes a long time/weeks before immunity is achieved/antibodies reach a high enough level [1]	
		(iv)	The vaccination was for a different strain/two strains (species) were different [1]	
	(b)	(i)	Numbers increased from 2003–2015 [1] increase supported by reference to any two percentages from flow chart [1] [2]	
		(ii)	Don't believe vaccination is safe [1]	9

9 Indicative content

- use the thermometer to record the temperature of the water
- at the start and end of the investigation
- burn the food sample, e.g. biscuit
- record difference in temperature/the higher the temperature rise, the more energy in the food
- repeat for the other food sample (bread)
- any **two** from – use same mass of food/ensure burning food is same distance away from boiling tube/ensure temperature of water is even throughout boiling tube (use of stirrer)/use the same volume of water
- some burnt food remains/used to heat glass/lost in air

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe how to compare the amount of energy in different foods using **six, seven or eight** of the points above, in a logical sequence. 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 to describe how to compare the amount of energy in different foods using **four or five** of the points above, in a logical sequence. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	[3]–[4]
C	Candidates describe how to compare the amount of energy in food using **one, two or three** of the above points. However, these are not presented in a logical sequence. They use limited spelling, punctuation and grammar and have made limited use of specialist terms. The form and style are of a limited standard.	[1]–[2]
D	Response not worthy of credit.	[0]

[6] 6

Total **60**