Rewarding Learning

General Certificate of Secondary Education
2014–2015

Science: Single Award

Unit 1 (Biology)

Foundation Tier

[GSS11]

TUESDAY 12 MAY 2015, 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)**	

Substance	Harmful effect
Tar	causes cancer [1]
Carbon monoxide [1]	stops red blood cells carrying oxygen
Nicotine	affects heart rate [1]

[3]

(b) Liver [1]
violence [1]
binge [1] [3] — 6

2 **(a)** A – Ash
B – Hazel
C – Horse chestnut
D – Alder
½ mark each round down [2]

(b) We can see a relationship between different groups [1]
allows us to put a newly discovered organism into a group [1] [2] — 4

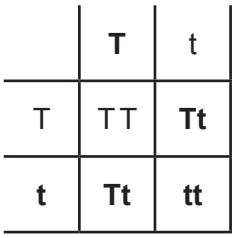
3 **(a)** **(i)** Fossil (or named) [1]

(ii) Sulfur dioxide travels in the wind [1]

(b) Bushy [1]
Shows the greatest change (over distance from factory) [1] [2]

(c) 3.8 – 0.9 [1]
2.9 [1] [2] — 6

				AVAILABLE MARKS
4	**(a)**	**(i)** To remove any starch which is already present in the leaf [1]		
		(ii) Any **three** from: • (use the scissors to) cut a small hole in the centre of the black paper/idea that only some of leaf is covered • place the black paper with the cut hole over one leaf (which is still attached to the plant) • use the paper clips to hold the black paper in place • (switch the lamp on and) leave the plant in (bright) light for at least 24 hours [3]		
	(b)	**(i)** Any **one** from: Grass → Greenfly → Bluetit → Owl Grass → Greenfly → Bluetit → Fox Tree leaves → Greenfly → Bluetit → Owl Tree leaves → Greenfly → Bluetit → Fox Berry bushes → Greenfly → Bluetit → Owl Berry bushes → Greenfly → Bluetit → Fox [1] Starts with producer [1] [2]		
		(ii) Producer/make own food/photosynthesise [1] provide food energy for rest of food web/consumers/animals [1] [2]		
		(iii) Number of owls increase [1] owls have more food [1] [2]		10
5	**(a)**	D, C, A, E, B Any two in correct sequence [1] All correct [2] [2]		
	(b)	**(i)** It is a (physical and) mental illness/no one treatment works for all patients [1]		
		(ii) Bulimia (nervosa) [1]		
	(c)	**(i)** 20 + 22 + 25 + 18 + 10 = 95 [1] 100 – 95 = 5 [1] [2]		
		(ii) Only one hospital/only one eating disorder/only taken over one year/ only 100 admissions [1]		7

				AVAILABLE MARKS
6	**(a)**	**(i)**	Niamh [1] received recessive alleles from both parents for blond hair/ and blue eyes/father did not pass on his dominant allele for brown hair [1] [2]	
		(ii)	As he carries a recessive allele for eye colour (and neither parent has a recessive allele to give) [1]	
	(b)	**(i)**	Tt [1]	
		(ii)	 Gametes correct [1] Offspring correct [1] [2]	
		(iii)	3 [1]	
		(iv)	Discontinuous [1]	8
7	**(a)**	**(i)**	Doctors and nurses have close contact with infected patients [1]	
		(ii)	In vitro [1] animal [1] (in correct order) both stages present but in wrong order [1] [2]	
	(b)	**(i)**	Active [1] slow to act/long lasting [1] [2]	
		(ii)	So it does not give the person the disease [1]	
		(iii)	If the initial vaccination does not produce enough antibodies/ so antibody level reaches level of immunity [1]	7
8	**(a)**	**(i)**	X in pancreas [1]	
		(ii)	Lowers blood sugar levels [1] as glucose is converted to glycogen/increased respiration/converted to fat [1] [2]	
	(b)	**(i)**	No increase in percentage of people (with diabetes) with long term effects between 40 and 160 arbitrary units of blood sugar [1] sharp increase in percentage of people with long term effects from 160 – 200 arbitrary units of blood sugar [1] [2]	
		(ii)	Blood sugar levels can fluctuate due to eating, exercise/ to check how much insulin to give themselves [1]	6

9 Indicative content

- protein found in meat, nuts and seeds, seafood, beans and peas, poultry (named source)
- growth/repair
- place a little piece of the food in a test tube/boiling tube
- add Biuret reagent
- (if the Biuret reagent changes) colour from blue
- to purple/lilac/mauve then protein is present

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe how to carry out the food test investigation using **five or six** 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 must use appropriate specialist terms throughout to describe how to carry out the food test investigation using **three or four** 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 carry out the food test investigation using **one or two** of the points above. However, these are not presented in a logical sequence. They use limited spelling, punctuation and grammar. The form and style are of a limited standard.	[1]–[2]
D	Response not worthy of credit.	[0]

[6] 6

Total **60**

AVAILABLE MARKS