



Rewarding Learning

**General Certificate of Secondary Education
2016–2017**

Science: Single Award

Unit 1 (Biology)

Foundation Tier

[GSS11]

WEDNESDAY 22 FEBRUARY 2017, MORNING

**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		
6	(a)	(i) Increased until 110 [1] then levelled off [1] (increased then levelled off = 1)	[2]	7	
		(ii) Remains at 110 for 1 min [1] falls between 5–7 minutes/falls over 2 minutes [1] finishes level on 70 (7–8 mins)/finishes level on 70 for at least 1 min [1]	[3]		
	(iii) 3 minutes	[1]			
(b)	Heart disease/stroke/Type 2 diabetes	[1]			
7	(a)	(i) Pancreas	[1]		10
		(ii) Reduces blood glucose levels [1] by converting it to glycogen [1]	[2]		
	(b)	(i) More exercise than normal/more carbohydrate than normal [1] used/missed breakfast/didn't eat enough [1] resulted in low blood sugar levels [1]	[2]		
		(ii) Take glucose/or by example	[1]		
	(c)	Any two from: <ul style="list-style-type: none"> • Type 2 affects mainly older people (or converse) • Type 2 patients produce (some) insulin but doesn't work properly/ Type 1 patients do not produce insulin • Type 2 linked to lifestyle (or converse) • Type 2 treated by diet/tablets/exercise/seldom by insulin (or converse) 	[2]		
	(d)	Any two from: <ul style="list-style-type: none"> • hormones a chemical signal/nervous system electrical • hormones travel in the blood/nervous coordination along neurones/ nerve cells • hormones usually act slower than nervous action 	[2]		
8	(a)	(i) A condition passed on genetically	[1]		
		(ii) Gametes correct [1] offspring correct [1]	[2]		
		(iii) Genotypes with DD and Dd circled	[1]		
		(iv) 75%/3 in 4 (or equiv) (use ECF from (iii)) (must match diagram)	[1]		
	(b)	Individuals can be easily grouped/discrete categories	[1]	6	

- 9 (a) (i) 42/30 [1]
1.4 [1] [2]
- (ii) Enough room for them all to grow (to their maximum)/no competition [1]
- (b) As number of seedlings in pot increases total mass increases up to 45g/
when 25 seedlings in the pot
- more seedlings contributing to overall mass
 - (decrease) due to competition at higher densities [3]

10 Indicative content

- microorganisms have antigens/antigens stimulate the body
- white blood cells/lymphocytes produce antibodies
- antibodies and antigens are a complementary shape
- antibodies latch on to antigens/microorganisms
- causing immobilisation of microorganisms
- phagocytes engulf microorganisms
- and digest them/break them down

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe how the body can combat harmful microorganisms using six or seven 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 the body can combat harmful microorganisms using three, 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 the body can combat harmful microorganisms using one or two 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]

Total

AVAILABLE
MARKS

6

6

60