Rewarding Learning

General Certificate of Secondary Education
2015–2016

Science: Single Award

Unit 1 (Biology)

Foundation Tier

[GSS11]

WEDNESDAY 24 FEBRUARY 2016, 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

1 **(a)**

Part of female reproductive system	Function
ovary [1]	produces eggs (ova)
uterus [1]	where the baby develops
oviduct [1]	where fertilisation takes place

[3]

(b) **(i)** Condom – barrier to prevent sperm entering the female [1]
Contraceptive pill – changes a woman's hormone levels and stops eggs being released [1] [2]

(ii) Against their religion [1] 6

2 **(a)** Arrow pointing left at plant which is bending over [1]

(b) **(i)** Phototropism [1]
hormone [1] [2]

(ii) Plant gets more light [1]
for more photosynthesis/for more growth [1] [2] 5

3 **(a)** **(i)**

	Statement		
Food group	**Biuret reagent is used**	**Iodine changes to blue/black**	**Test solution is heated**
protein	✓		
sugar			✓
starch		✓	

[3]

(ii) Protein [1]

(b) Acts as a solvent/for transport/for chemical reactions [1]

(c) All bars correct [2]
3 bars correct [1] [2] 7

					AVAILABLE MARKS
4	**(a)**	**(i)**	Microorganisms are surrounded/engulfed [1] microorganisms are digested/broken down [1]	[2]	
		(ii)	Phagocyte	[1]	
	(b)	**(i)**	Passive	[1]	
		(ii)	6 months [1] dramatic fall in antibody level [1]	[2]	6
5	**(a)**	**(i)**	Pancreas	[1]	
		(ii)	Travels in the blood [1] goes to a target organ/only goes to the liver [1]	[2]	
		(iii)	Glycogen	[1]	
	(b)	**(i)**	230–170 [1] 60 [1]	[2]	
		(ii)	Between 0 and 1 hours	[1]	
		(iii)	Blood glucose levels increase to (a peak) one hour after meal [1] then decrease [1]	[2]	9
6	**(a)**	**(i)**	Wind and wave do not produce carbon dioxide/do not contribute to global warming [1] however, the cost of producing electricity is far greater from wind and wave than coal and gas/people not prepared to pay extra cost [1]	[2]	
		(ii)	Melting polar ice caps/increasing sea levels/climate change	[1]	
	(b)	**(i)**	Slurry being spread on sloping land/too close to lake [1] It is raining (so slurry is going to be washed off land) [1]	[2]	
		(ii)	Fewer bacteria so less oxygen being used up	[1]	
		(iii)	Number of species of fish increases	[1]	7

				AVAILABLE MARKS
7	**(a)**	As number of seeds per pot increases average mass of each plant decreases [1] competition/for light/space/water [1]	[2]	
	(b)	**(i)** Any **three** from: • add different numbers of seeds in each pot [1] • leave for a period of time that is specified [1] • weigh plant in each pot [1] • calculate average mass of each plant in the pot [1]	[3]	
		(ii) Any **two** from: • use the same size of pot • use the same volume/type of compost • give each pot equal amount of water • same amount of light • same temperature • grow for same length of time • same type of seeds	[2]	7
8	**(a)**	**(i)** Gametes correct [1] offspring correct [1]	[2]	
		(ii) bb circled	[1]	
		(iii) 3	[1]	
	(b)	Both alleles the same	[1]	
	(c)	Dominant allele is expressed/characteristic shows if heterozygous [1] recessive allele is masked by dominant allele/characteristic only shows if homozygous [1]	[2]	7

9 Indicative content

AVAILABLE MARKS

- continuous
- (continuous variation) is a gradual change in a characteristic across a population
- discontinuous
- (discontinuous variation) occurs when all individuals can be clearly divided into two or more groups
- height (continuous)
- tongue rolling (discontinuous)

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe variation using **all** 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 variation 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 variation using **one, two or three** 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**