



Rewarding Learning

**General Certificate of Secondary Education
2017**

Biology

Unit 2

Foundation Tier

[GBY21]

FRIDAY 16 JUNE, 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) Testis/testes;	[1]	4
	(b) Any two from: Breasts develop; Hips widen; Menstruation;	[2]	
	(c) Pubic hair growth/increased sexual awareness;	[1]	
2	Random; [1] Genes; [1] Down Syndrome; [1] Environmental; [1]	[4]	4
3	(a) A – Valve (semi-lunar); Function – Avoid backflow/keep blood flowing away from heart;	[2]	5
	(b) (i) Ventricles;	[1]	
	(ii) Create higher pressure/has to pump blood further/all around the body;	[1]	
	(iii) X is deoxygenated/less O ₂ (accept converse for Y);	[1]	
4	(a) $3 \times 2 = 6$ units, $2 \times 2 = 4$ units; [1] 10; [1]	[2]	5
	(b) Binge drinking;	[1]	
	(c) Violence; family break-ups; costs to NHS; absence from work; drink-driving;	[2]	
5	(a) (i) Bases labelled: T, G, G, T;	[2]	5
	(ii) Drawn  ;	[1]	
	(b) Sugar/deoxyribose; [1] Phosphate; [1]	[2]	
6	(a) A – Umbilical cord; [1] B – Uterus wall; [1] C – Vagina; [1]	[3]	6
	(b) Any two from: Through large surface area; Diffusion; From mother's blood into foetal blood;	[2]	
	(c) Protect/cushion the foetus;	[1]	

			AVAILABLE MARKS
7	<p>(a) RR; [1] Widow's peak; [1] Heterozygous; [1] Homozygous; [1]</p> <p>(b) (i) Ann (rr), Dave (Rr);</p> <p>(ii) Rr Rr; [1] rr rr; [1]</p> <p>(iii) $50\% / \frac{1}{2}$;</p>	<p>[4]</p> <p>[1]</p> <p>[2]</p> <p>[1]</p>	8
8	<p>(a) Blood released (from cervix/uterus/vagina);</p> <p>(b) B, C;</p> <p>(c) Nucleus of sperm and ovum; [1] Fuse; [1] To form a zygote/single cell; [1]</p> <p>(d) D, C, B; ([-1] for each wrong)</p>	<p>[1]</p> <p>[2]</p> <p>[3]</p> <p>[2]</p>	8
9	<p>(a) Length increases steadily; [1] up to 350mm/24 weeks; [1] slower increase (24–36 weeks); [1]</p> <p>(b) Baby born prematurely/36 weeks/4 weeks early; [1] Below average birth mass; [1] 2800g/400g below average; [1] (correct numerical reference required)</p> <p>(c) (i) Mitosis;</p> <p>(ii) Replace/repair;</p>	<p>[3]</p> <p>[3]</p> <p>[1]</p> <p>[1]</p>	8

			AVAILABLE MARKS	
10	(a)	A – Evaporation; [1] B – Diffusion; [1]	[2]	
	(b)	(i) $8.4 - 6.3 = 2.1$; [1] $(2.1 \times 100) \div 8.4$; [1] 25%; [1]	[3]	
		(ii) Decrease;	[1]	
		(iii) Any two from: Increased wind; Increased light; Increased temperature; (‘Increased’ required once)	[2]	
	(c)	(i) Tomato; [1] Least number of stomata; [1]	[2]	
		(ii) Graph Z ; [1] Pea has most stomata/described; [1] Pea loses water fastest/described; [1]	[3]	13
11	(a)	Larger nucleus; irregular shape; thicker cell membrane; (any 2)	[2]	
	(b)	Fewer cancer cells/smaller tumour; [1] Tumour not spreading/entering the blood; [1]	[2]	
	(c)	Any two from: Radiotherapy; [1] Surgery; [1] Laser treatment; [1]	[2]	6
12	(a)	A – Aorta; [1] B – Renal artery; [1] C – Pulmonary artery; [1]	[3]	
	(b)	Blood vessel drawn between digestive system and liver; [1] arrow drawn up/↑; [1]	[2]	5
13	(a)	(i) Discontinuous;	[1]	
		(ii) Tongue rolling;	[1]	
	(b)	(i) $\frac{34}{100} \times 1\,800\,000 / 1\,800\,000 - (954\,000 + 180\,000 + 54\,000)$; [1] 612 000; [1]	[2]	
		(ii) Fewest number of people to donate;	[1]	
	(c)	Blood given from one person to another;	[1]	6

14 (a) Fleming;

[1]

(b) Indicative Content

1. Bacteria grown on agar plates;
2. Plates contaminated/described;
3. Penicillium is a fungus;
4. Produces a chemical/substance/antibiotic;
5. Chemical diffuses;
6. Bacteria killed;
7. Reference to clear area;

Accept: bullet points which start with capital letter, contain a verb and end in full stop as sentences.

Response:

Band	Response	Mark
A	Candidates must use appropriate, specialist terms throughout using at least 5 of the points . 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 throughout using at least 3 of the points . They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard .	[3]–[4]
C	Candidates make little use of specialist terms throughout using at least 1 of the points . The spelling, punctuation and grammar, form and style are of a limited standard .	[1]–[2]
D	Response not worthy of credit.	[0]

[6]

Total

AVAILABLE
MARKS

7

90