



GCSE

Biology B

General Certificate of Secondary Education **B632/01**

Unit 2: Modules B4, B5, B6

Mark Scheme for June 2010

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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General advice to Assistant Examiners on the procedures to be used

YOU WILL BE REQUIRED TO UNDERTAKE 10 PRACTICE AND 10 STANDARDISATION SCRIPTS BEFORE STARTING TO MARK LIVE SCRIPTS.

- 1 The schedule of dates for the marking of this paper is very important. It is vital that you meet these requirements. If you experience problems then you must contact your Team Leader (Supervisor) without delay.
- 2 An element of professional judgement is required in the marking of any written paper. Candidates often do not use the exact words which appear in the detailed sheets which follow. If the science is correct and also answers the question then the mark(s) should normally be credited. If you are in doubt about the validity of any answer then consult your Team Leader (Supervisor) by phone, the messaging system within Scoris or e-mail.
- 3 Correct answers to calculations always gain full credit even if no working is shown. (The 'Show your working' is to help candidates, who may then gain partial credit even if their final answer is not correct.)
- 4 Some questions may have a 'Level of Response' mark scheme. Any details about these will be in the additional guidance.
- 5 If an answer has been crossed out and no alternative answer has been written then mark the answer crossed out.
- 6 In addition to the award of 0 marks, there is a NR (No Response) option on Scoris.

Award 0 marks

- if there is any attempt that earns no credit (including copying out the question or some crossed out working)

Award NR (No Response)

- if there is nothing written at all in the answer space
OR
- if there is any comment which does not in any way relate to the question being asked (eg 'can't do', 'don't know')
OR
- if there is any sort of mark which is not an attempt at the question (eg a dash, a question mark)

- 7 Abbreviations, annotations and conventions used in the detailed Mark Scheme.

/	= alternative and acceptable answers for the same marking point
(1)	= separates marking points
not	= answers which are not worthy of credit
reject	= answers which are not worthy of credit
ignore	= statements which are irrelevant
allow	= answers that can be accepted
()	= words which are not essential to gain credit
	= underlined words must be present in answer to score a mark
ecf	= error carried forward
AW	= alternative wording
ora	= or reverse argument

8 Annotations: the following annotations are available on Scoris.

✓	= correct response
✗	= incorrect response
bod	= benefit of the doubt
nbod	= benefit of the doubt <u>not</u> given
ECF	= error carried forward
^	= information omitted
I	= ignore
R	= reject
con	= contradiction

Highlighting is also available to highlight any particular points on the script.

The following questions should be annotated with ticks to show where marks have been awarded in the body of the text:

9 The Comments box

The comments box will be used by your PE to explain their marking of the practice scripts for your information. Please refer to these comments when checking your practice scripts. You should only type in the comments box yourself when you have an additional object of the type described in Appendix B of the Handbook for Assistant Examiners and Subject Markers.

Please do not use the comments box for any other reason.

Any questions or comments you have for your team leader should be communicated by phone, Scoris messaging system or e-mail.

10 Please send a brief report on the performance of the candidates to your Team Leader (Supervisor) by the end of the marking period. The Assistant Examiner's Report Form (AERF) can be found on the Cambridge Assessment Support Portal. This should contain notes on particular strengths displayed, as well as common errors or weaknesses. Constructive criticisms of the question paper/mark scheme are also appreciated.

Question		Expected Answers	Marks	Additional Guidance
1	(a)	oxygen (1)	1	
	(b) (i)	any two from cool / chill / keep cold (1) freeze (1) dry (1) add vinegar / pickle (1) add salt / sugar (1)	2	allow keep in fridge allow keep in freezer allow dehydrate ignore lemon juice allow turn into jam (1) allow irradiate (1) vacuum pack (1) ignore airtight / pasteurise / UHT / antioxidants / preservatives
	(ii)	any one from: kills bacteria / mould / fungi / microbes / decomposers / saprophytes (1) stops oxygen / air / gasses getting to fruit (1)	1	allow sterilizes fruit ignore germs allow stop microbes getting in
		Total	4	

Question		Expected Answers	Marks	Additional Guidance
2	(a)	artificial fertilisers are banned (1)	1	
	(b)	any one from: (yes) less land needed (1) more crops / cheaper to produce / higher yield (1) (no) uses harmful chemicals (1) animals kept in cramped conditions / can't move around (1) diseases can spread more quickly (1) more mucking out / more clean bedding needed (1)	1	no mark for yes or no but must be correctly linked allow grows quicker / bigger allow larger environments in organic ignore references to taste or better product
	(c)	roots and leaves (1)	1	more than one tick no mark
		Total	3	

Question		Expected Answers	Marks	Additional Guidance
3	(a)	<p>flower = reproduction (AW) (1)</p> <p>chloroplasts = absorb light / photosynthesis / make food / contains chlorophyll (1)</p> <p>cell walls = support (1)</p>	3	<p>allow attracts insects / makes pollen / makes ovules / fertilisation / makes fruit / makes seeds / pollination not makes scent / nectar unless qualified</p> <p>ignore feeds plant</p> <p>ignore let water / gases in or out allow holds plant up / for strength / stops cells bursting / maintains cell shape / cell structure ignore protects / keeps structure</p>
	(b)	<p>any three from:</p> <p>absorbed / enters through root (hairs) (1) by osmosis (1)</p> <p>(transported) up the stem / trunk / branches (1) in xylem (1)</p> <p>by transpiration (1)</p> <p>evaporates / diffuses out of the leaves (1)</p> <p>through stomata / leaf pores (1)</p>	3	<p>must give the idea that enters, not just in roots</p> <p>must give direction, not just moves in stem</p>
	(c)	<p>increase in wind speed /</p> <p>lower humidity /</p> <p>increase in temperature (1)</p>	1	<p>must be comparative allow windy ignore wind</p> <p>allow gets drier ignore reference to rain ignore dryness</p> <p>ignore warmth / heat / temperature</p>
	(d)	photosynthesis (1)	1	
		Total	8	

Question		Expected Answers	Marks	Additional Guidance
4	(a)	eats food / grass / producer (1)	1	allow cannot make own food / needs to feed / eats something ignore consumes food / grass allow comes second in food chain / comes after producer in food chain
	(b)	sun / light (1)	1	
	(c)	both bars drawn correctly (1) cricket and bird labelled (1)	2	ignore asymmetry cricket = 5 squares +/- ½ square bird = must be less than one square allow if bird bar is one square wide but not as high as producer bar
	(d)	heat / respiration / egestion / excretion (1)	1	not growth / repair allow in faeces / urine / not all parts eaten / movement ignore waste / death allow any process that involves movement
		Total	5	

Question		Expected Answers	Marks	Additional Guidance
5	(a)	(i) add up and divide by number of values / add up and divide by 3 / $48 \div 3$ (1)	1	
		(ii) 16×4 (1) BUT 64 (2)	2	correct answer, no working = 2
		(iii) heart beat / heart pumping / heart contracting / heart muscle contracting (1)	1	allow higher level answers eg ventricles contract / arteries recoil allow change of blood flow / pressure (in artery) not vein ignore heart
	(b)	(i) red blood cell (1)	1	
		(ii) plasma (1)	1	
		(iii) white blood cell (1)	1	
		Total	7	

Question		Expected Answers	Marks	Additional Guidance
6	(a)	chitin (1)	1	
	(b) (i)	respiration / release energy (from food) (1)	1	ignore to live / to breathe / for energy / for respiratory system
	(ii)	one from: have external skeleton (1) skin / chitin / body not moist / not permeable (1)	1	not shells
	(iii)	(through) skin / over body surface / by diffusion (1)	1	allow all over the body not reference to holes
	(c) (i)	A (1)	1	
	(ii)	earthworms don't have puberty / adolescence / growth spurts / ORA (1)	1	allow idea that in humans growth is not constant
	(iii)	mitosis (1)	1	mark phonetically
		Total	7	

Question		Expected Answers	Marks	Additional Guidance
7	(a)	<p>any three from:</p> <p>homeostasis ideas: regulate water loss / control blood concentration / removes excess water / removes excess salts (1)</p> <p>filter blood (1)</p> <p>(at high) pressure (1)</p> <p>re-absorb water / useful substances (1)</p> <p>remove urea / waste products from blood (1)</p> <p>make urine (1)</p>	3	<p>ignore filter fluids</p> <p>allow 'ultrafiltration' = 2</p> <p>allow named examples eg sugar / amino acids / salts</p> <p>ignore clean blood / remove waste from body</p> <p>ignore excretes urine</p>
	(b) (i)	<p>two from:</p> <p>tissue match / same DNA / same blood group / same genes(1)</p> <p>same / similar size / same age (1)</p> <p>he knows his brother's health / lifestyle (1)</p> <p>avoids waiting lists (1)</p>	2	<p>allow not rejected / will not need so many anti rejection drugs but</p> <p>ignore similar</p>
	(ii)	(kidney machines are) too big (1)	1	
		Total	6	

Question		Expected Answers	Marks	Additional Guidance
8	(a)	fungus (1)	1	
	(b) (i)	carbon dioxide (1)	1	allow correct formula
	(ii)	apples (1)	1	allow pears
	(c) (i)	petrol (1)	1	allow gasoline / petroleum
	(ii)	any three from: happens in a digester (1) organic waste is acted on by bacteria (1) bacteria cause rotting / organic waste is rotted / decomposed (1) methane is made (from waste) / biogas contains methane (1)	3	organic waste is rotted by bacteria to release methane = 3 marks bacteria rots waste = 2
		Total	7	

Question			Expected Answers	Marks	Additional Guidance
9	(a)	(i)	dead / decaying / rotting material (1)	1	allow dead / decaying / rotting plants / animals / animal waste / organic waste
		(ii)	rock / sand / clay / silt / stones / air / water / minerals / nutrients (1)	1	allow named gas / mineral / N / P / K / acid not litter / plastic / fertilizer
	(b)	(i)	live plants → wireworm → centipede dead plant material → earthworm (1)	1	
		(ii)	they make burrows that let oxygen into the soil (1)	1	more than one tick no mark
			Total	4	

Question		Expected Answers	Marks	Additional Guidance
10	(a)	0.002 mm (1)	1	
	(b)	(using their) flagellum (1)	1	ignore tail
	(c)	antibiotics (1)	1	ignore antibacterial ignore named antibiotic
	(d)	erupting volcanoes / earthquakes / floods / mudslides / tsunamis / tornados / hurricanes (1)	1	not war / drought
		Total	4	

Question		Expected Answers	Marks	Additional Guidance
11	(a)	GM plants have had their DNA changed (1)	1	
	(b)	(i) crops / the growth / area is increasing (in both types of countries/ in the world) (1) but the growth / the increase in developing countries is faster = (2) the proportion of the whole world GM production is becoming more equally split between developing and developed countries (1) growth in developed countries is (always) higher than in developing countries (1)	2	allow the countries are increasing ignore it / they / both / all are increasing ORA allow the countries are becoming the same ORA
		(ii) developing countries grew less than 58 (52 – 57) (million hectares in 2007) (1)	1	not just developed countries grew 60 million allow the crops / the growth / area in developing countries did not reach that high
		(iii) maize / cotton / corn / canola (1)	1	allow tomatoes
		Total	5	

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