



GCSE

Biology B

General Certificate of Secondary Education

Unit **B632/01**: Modules B4, B5, B6 (Foundation Tier)

Mark Scheme for June 2011

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

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The **Abbreviations, annotations and conventions** used in the detailed Mark Scheme are:

/	=	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

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Mark Scheme

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Question			Expected Answers	Marks	Additional Guidance
1	a	i	plastic / bag covers soil or pots (1)	1	allow plastic is impermeable / waterproof
	a	ii	C (1) correct reference to 227 (1)	2	
	b		evaporation / transpiration / diffusion(1) from leaves (1)	2	allow through stomata / pores (1) allow from respiration
	c		A (1) max two from: more light / most light (1) for photosynthesis (1) (more) stomata open (1)	3	allow photosynthesises the most (1)
			Total	8	

Question			Expected Answers	Marks	Additional Guidance
2	a		(too) cold (1) no decomposers / no microorganisms / no microbes / no bacteria / no fungi (1)	2	allow lack of / no air / oxygen (1) allow enzymes / chemical reactions do not work when frozen / solid (1) allow (microbes) cannot respire (1)
	b		teeth (1)	1	if > 1 ring, 0 marks
	c		protein (1)	1	allow ammonium compounds / ammonia / nitrites / urea / amino acids / peptides / DNA
	d		carbon dioxide / methane (1)	1	allow correct formulae allow biogas / hydrogen sulfide / ammonia
			Total	5	

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Question			Expected Answers	Marks	Additional Guidance
3	a		photosynthesis (1)	1	
	b		(energy lost as) heat / respiration / movement / egestion / excretion / not all corn eaten / not all (parts of) chickens eaten / not all food digested (1)	1	
	c	i	10 (%) (1)	1	
	c	ii	0.5 (%) (1)	1	
	d		get more energy / less energy lost / can feed more people (1)	1	
	e		nitrate (1) phosphate (1)	2	
			Total	7	

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Question			Expected Answers	Marks	Additional Guidance
4	a		(given to someone) having an operation / haemophiliac / blood disorder / cancer patient (1)	1	allow provide clotting factor / for research allow an example of an operation
	b		anti – coagulant (1)	1	allow ringed answer but mark answer line first more than one answer on answer line scores zero
	c		capillary / artery (1)	1	allow arterioles / venules ignore named blood vessel
	d	i	B neg(ative) / B-(1)	1	not B positive / B
	d	ii	8 (1)	1	
	e		more people are O positive / O positive can donate to more people / more blood types (1)	1	allow can be given to anyone / is a universal donor ignore it is more popular
			Total	6	

Question			Expected Answers	Marks	Additional Guidance
5	a		ligament (1)	1	
	b		synovial / hinge (1) triceps (1) antagonistic (1)	3	allow moveable
			Total	4	

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Question			Expected Answers	Marks	Additional Guidance
6	a	i	<u>excretion</u> (1)	1	not defecation / filtration / egestion
	a	ii	salt and water (1)	1	
	b		(made in) liver (1) (from) amino acids / proteins (1)	2	allow ammonia / nitrogen compounds (1) ignore carbon dioxide
			Total	4	

Question			Expected Answers	Marks	Additional Guidance
7	a	i	gills (1)	1	
	a	ii	respiration / releasing energy from food (1)	1	allow for energy / making energy ignore keep alive / to move / to swim / to breathe
	b		ideas of gills needing a flow of water over them (1) eg gills do not work out of water / gills dry up ignore it does not have lungs	1	allow gills dry up / gills stick together / gills (out of water) have a larger (exposed) surface area ignore it does not have lungs
			Total	3	

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Question			Expected Answers	Marks	Additional Guidance
8	a		when egg and sperm fuse (1)	1	allow sperm enters egg ignore when egg and sperm meet
	b		maximum two from: different genes / DNA (1) different diet (1) but more protein / calcium (2) one exercised more than the other (1) different (amounts) hormones (1) but Ben has more growth hormone (2) ora Daniel may have had a disease / Ben is more healthy (1)	2	allow environment / lifestyle (1) if no other environmental answer given
			Total	3	

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Question		Expected Answers	Marks	Additional Guidance
9	a	glass bottles <input type="checkbox"/>	2	incorrect tick loses a mark
		plastic bottles <input type="checkbox"/>		
		sewage <input checked="" type="checkbox"/>		
		steel cans <input type="checkbox"/>		
		vegetable peelings <input checked="" type="checkbox"/>		
	b	biogas (1)	1	allow biofuel (1) ignore "natural gas"
	c	(cell) B (1)	1	allow cell B ringed in table (1)
	d	5 x 4.5 (1) 22.5/0.15 (1) but 150 (2)	2	
Total			6	

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Question			Expected Answers	Marks	Additional Guidance
10	a	i	fungus (1)	1	allow fungi (1)
	a	ii	<p>alcoholic drink type of plant material</p>	2	3 correct (2) 1 or 2 correct (1)
	b	i	4.4 (percent)	1	allow +/- 0.1(1)
	b	ii	increase in temperature causes faster reproduction (1)	1	allow can reproduce quicker in warmer conditions (1) allow growth as an alternative to reproduction ignore it makes reproduction faster
	c		gasohol (1)	1	allow biofuel ignore ethanol
			Total	6	

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Question			Expected Answers	Marks	Additional Guidance
11	a		sample site 3 (no mark) water flows downstream carrying insecticide from farm B (1 mark for correct reason)	1	allow run-off from farm B goes downstream (1)
	b	i	DNA (1)	1	allow deoxyribonucleic acid(1) allow bases / A T C & G
	b	ii	(insect poison) gene removed from bacterium / put gene into plasmid (1) Inserted new gene into the cotton plant (1) New gene works in cotton plant to produce insect poison (1)	3	allow plasmid has insect poison gene in it (1) allow get plasmid and put it in cotton plant (1)
			Total	5	

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Question			Expected Answers	Marks	Additional Guidance
12	a		through skin / mouth / (open wound) (1)	1	allow person to person contact / kissing / handshaking (1) ignore breathing
	b		any two from: antibiotics only destroy bacteria / fungi (1) antibiotics usually swallowed or injected (1) antiseptics kill different types of micro-organisms (1) antiseptics applied to external body parts like the skin (1) antiseptics can be used on surgical instruments / surfaces (1)	2	
			Total	3	

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