OCR
RECOGNISING ACHIEVEMENT

GCSE

Biology B

General Certificate of Secondary Education

Unit **B631/01**: Modules B1, B2, B3 (Foundation Tier)

Mark Scheme for June 2011

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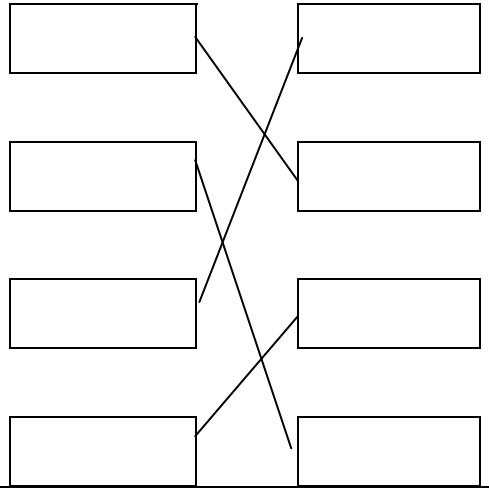
1 The **Abbreviations, annotations and conventions** used in the detailed Mark Scheme are:

/ = 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

Question			Expected Answers	Marks	Additional Guidance
1	a	i	a chemical in the air **and** nose (1)	1	**more than one line is zero**
		ii	happens quickly (1) do not have to think about it (1)	2	**ignore** happens almost immediately (already in stem of question) **allow** idea of it being an automatic response (1) **allow** reference to idea of protection (1)
	b	i	(in the) nucleus (1)	1	**allow** on the chromosomes / in the DNA
		ii	red-green colour blindness / sickle cell anaemia / cystic fibrosis (1)	1	**allow** any correct answer eg Down's syndrome / deafness **ignore** cancer unless specified eg breast cancer
			Total	**5**	

Question			Expected Answers	Marks	Additional Guidance
2	a	i	develop cravings for it / dependant on it / suffer withdrawal effects without it (1)	1	**allow** implication of dependency
		ii	emphysema / bronchitis / cancer / heart disease (1)	1	**allow** any correct answer
	b	i	25 (1)	1	
		ii	the higher the number of cigarettes smoked the smaller the birth weight / mass / ora (1) idea of considerable variation / scattering of results (1)	2	**allow** negative correlation / inversely proportional (1)
			Total	**5**	

Question			Expected Answers	Marks	Additional Guidance
3	a		breakfast (1)	1	
	b		fat (1)	1	
	c		RDA is 39(g) (1) diet gives her 45(g) (1)	2	**allow** diet gives 6(g) more than RDA (2) if give 39 and 45 (1)
			Total	**4**	

Question			Expected Answers	Marks	Additional Guidance
4	a			2	four correct = 2 marks two / three correct = 1 mark one correct = zero more than 4 lines deduct 1 mark for each extra line (min zero)
	b		measure pulse **at rest** then do some exercise (1) see how long it takes for pulse to return to normal (1)	2	
	c	i	arteries (1)	1	**allow** artery
		ii	the heart / contraction of ventricles (1)	1	**not** blood pressure on its own / muscle contraction **ignore** valves
			Total	**6**	

Question			Expected Answers	Marks	Additional Guidance
5	a		predators (1) habitat (1) community (1)	3	
	b		fish / amphibian / reptile / bird (1)	1	**ignore** named examples
	c		idea of fish quota (1)	1	**allow** reduce pollution in sea / water **allow** protect habitat / fewer trawlers / fewer fishing boats / larger holes in net / fish farms / exclusion zones / return smaller fish / reduce fishing season / fish somewhere else / captive breeding / catch alternative species **ignore** ban fishing **ignore** just 'breed' BUT **allow** breeding programme
			Total	**5**	

Question			Expected Answers	Marks	Additional Guidance
6	a		3.0 (2) **but if answer is incorrect** total = 24 **or** incorrect total ÷ 8 (1)	2	**allow** 3 (2) **allow** if nothing written on answer lines look in table
	b		**any two from:** idea of dog whelks most abundant where their food source is (1) idea of desiccation on upper shore (1) more predators on upper shore (1)	2	 eg the dog whelks will be where their food is (1) eg they dry out because uncovered longer (1) **ignore** just it's wetter nearer the sea (ie need consequence for whelks) **ignore** human impact **ignore** pollution
	c		mate / space / shelter (1)	1	**ignore** habitat / land idea
			Total	**5**	

Question			Expected Answers	Marks	Additional Guidance
7	a	i	photosynthesis (1)	1	
	a	ii	chlorophyll (1)	1	**allow** correct answer underlined, circled or ticked if answer line is blank.
	a	iii	oxygen (1)	1	**allow** O_2 **not** O
	b		preserved in amber / peat bog / tar pits / ice (1)	1	**allow** glaciers / tree sap / frozen **ignore** casts / impressions / desiccated **ignore** swamps **ignore** description of conditions e.g. lack of oxygen / microbes **ignore** implication that humans responsible e.g. put in freezer / mummify
			Total	**4**	

Question			Expected Answers	Marks	Additional Guidance
8	a		**any three from:** camouflage (1) hide from predator (1) built for speed / streamlined (1) escape predator (1) live in groups (1) less chance of getting caught (1) idea of stings or poison (1) as defence (1)	3	**allow** three descriptions **allow** one description (1) and an associated explanation (1) **not** explanation marks on their own without being associated **allow** being nocturnal (1) avoid predators (1) **allow** better hearing / sense of smell (1) avoid predators (1) **allow** migrate (1) to escape predators (1) **allow** mimicry / warning colours/scent (1) put predators off eating them (1) **allow** warning signals (1) to protect the whole group (1) **allow** reference to Narwhal tusk (1) as defence (1)
	b	i	not many left / in danger of dying out / in danger of going extinct (1)	1	**ignore** decreasing numbers / population going down **ignore** they are dying or being killed **ignore** in danger unless qualified
	b	ii	squirrel / kite (1) habitat (1)	2	**allow** environment / homes / nests / food supply (1)
			Total	**6**	

Question			Expected Answers	Marks	Additional Guidance
9	a		1 infancy 2 childhood 3 adolescence 4 maturity 5 old age	2	**all** in correct order (2) **a run of 3** in correct order (1) otherwise (0)
	b	i	14 (months) (1)	1	**allow** +/- half a month
	b	ii	11.1(%) (2) BUT 5 x 100 (1) 45	2	**allow** 11 (2)
	c	i	a change to a gene (1)	1	**allow** change to DNA/genetic material / chromosome (1)
	c	ii	radiation / chemicals / spontaneous (1)	1	**allow** mutagen **allow** higher level responses: ionising radiation / UV / X ray / gamma / correct carcinogens e.g. tar / cigarette smoke (1) **ignore** 'drugs'
			Total	**7**	

Question			Expected Answers	Marks	Additional Guidance
10	a	i	control movement of substances in and out of the cell (1)	1	**allow** idea of things passing in and out of the cell (1) **ignore** acts as a barrier
		ii	cytoplasm (1)	1	
		iii	diffusion	1	**allow** higher level descriptions of diffusion
	b		small size for swimming (1) tail for swimming (1) streamlined shape for mobility (1) nucleus to carry the genes (1) large numbers increase chance of fertilisation (1)	3	**allow** tiny so less energy needed (to move)/allows for large numbers (1) **allow** tail for mobility (1) **allow** shape lets them penetrate egg membrane (1) **not** shape lets them penetrate egg **wall** **allow** acrosome / enzymes in tip to penetrate egg membrane (1) **allow** many mitochondria to provide energy (1) **allow** little cytoplasm hence reduced mass (1)
			Total	**6**	

Question			Expected Answers	Marks	Additional Guidance
11	a		cut the stem at an angle **2** put the cutting in a warm place **3** choose a stem with bud **1**	2	**must start with choose a stem … = (1)** **next 2 steps in correct order = (1)** **all 3 correct (2)**
	b		**any one from:** be sure of characteristics (1) can mass produce if seeds difficult to cultivate (1)	1	 **allow** will always get the same colour flower **allow** you know what you will get **ignore** just they're the same **allow** genetically identical **allow** can still grow them if seeds difficult to grow **ignore** cost **allow** it's quick(er)
	c		(plant) hormones (1)	1	**allow** higher level responses auxins, IAA etc. **ignore** nutrients / minerals
	d	i	leaf / leaves (1)	1	
	d	ii	(by) evaporation (1) diffusion (1)	1	**allow** higher level transpiration responses(1)
	e		cell division (1)	1	**allow** higher level mitosis responses (1)
			Total	**7**	

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