



GCSE

Biology B

General Certificate of Secondary Education **B631/01**

Unit 1: Modules B1, B2, B3

Mark Scheme for June 2010

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Question		Expected Answers	Marks	Additional Guidance
1	(a)	<p>sense organ</p> <p>skin</p> <p>tongue</p> <p>ear</p> <p>eyes</p> <p>stimulus</p> <p>vibrations in the air</p> <p>light</p> <p>chemicals in food</p> <p>pressure</p>	2	<p>all three correct (2) one or two correct (1)</p>
	(b)	lens (1)	1	allow label written on the diagram
	(c)	reflex (action) (1)	1	<p>allow involuntary / doesn't involve thought (1) allow pupil reflex</p>
	(d)	genes	1	allow DNA (1) alleles (1) chromosomes (1)
	(e)	inherited (from his parents) (1)	1	<p>allow passed on from parents (in egg / sperm) (1) information in eggs and sperm (1) allow through his gene / DNA (1) ignore parents have given it him as this is insufficient to suggest inheritance / his parents have it</p>
		Total	6	

Question		Expected Answers	Marks	Additional Guidance
2	(a)	ear / finger / mouth / anus / armpit (1)	1	allow with sensitive strip on forehead (1) allow tongue (1) ignore forehead unless qualified
	(b)	sweat(ing) / more blood flow near skin (1)	1	allow breathing / radiation / convection / conduction / vasodilation (1)
	(c) (i)	idea of protection from certain pathogens / infections / diseases / illness (1)	1	allow protects from named pathogen / diseases allow stops you getting ill / getting a disease but ignore stops you getting sick ignore reference to germs not the idea that the immunisation fights the disease
	(ii)	white blood cells engulf pathogens (1) antibodies are produced (1)	2	allow digest / consume / break down bacteria ignore attack / fight / kill / eat ignore germs ignore references to memory cells not antibodies engulf bacteria e.g. makes antibodies (1) makes antibodies that engulf the bacteria (1) allow makes antitoxins
		Total	5	

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Question		Expected Answers	Marks	Additional Guidance
3	(a)	Diet C (1)	1	allow Diet C labelled undeveloped on diagram (1)
	(b)	Diet A (1) (Diet A) is high in protein / protein needed for growth (1)	2	allow Diet A labelled teenager on diagram (1) allow protein is needed to build up muscle (1) protoplasm is made of protein (1) needed for all cells to divide / increase in size (1) not reference to any other food type e.g. has protein for growth and carbohydrate for energy (0)
		Total	3	

Question		Expected Answers	Marks	Additional Guidance
4	(a)	high amount of salt in diet / 3 rd box excessive alcohol consumption / 5 th box (1)	1	both correctly ticked for 1 mark more than 2 ticks = 0
	(b)	(i) overweight (1)	1	ignore fat / obese allow bmi>25
	(ii)	BMI = 91.0 / (1.8) ² (1) BUT 28.09 or 28.1 or 28 (2)	2	allow 91.0 / 3.24 (1) allow 28.08642 or 28.0864 or 28.086 (2) allow 28.08 or 28.0 max 1(incorrect rounding)
	(c)	fitness involves being physically active (1) being healthy means free from infection / disease / disorder (1)	2	allow takes part in (active) sports allow quick recovery time allow idea that fitness is to do with physical activity e.g. have stamina / strength / suppleness / speed / agility allow idea that health is to do with whether you have any disease / illness allow idea that health is mental / social well being ignore references simply to (healthy) diet ignore being healthy means there is nothing wrong with you
		Total	6	

Question		Expected Answers	Marks	Additional Guidance
5	(a)	a vertebrate and a mammal (1)	1	more than 1 ticks = 0
	(b)	lose less water / salts (1)	1	allow because water is in short supply allow do not have to drink so much / so often allow so do not dehydrate / stay hydrated allow do not lose (any) water (from sweating) ignore fluid
	(c)	mutualism / mutualistic (1)	1	allow symbiosis ignore mutual
	(d) (i)	carbon dioxide CFCs (methane) nitrogen oxide	1	
	(ii)	more burning of fossil fuels / increased demand for energy	1	not increase in population unless qualified allow more cars / factories allow deforestation
		Total	5	

Question		Expected Answers	Marks	Additional Guidance
6	(a)	their habitat is disappearing (1)	1	more than 1 tick = 0
	(b)	there will be no more of them alive (1)	1	allow they have all died out / no longer exist ignore they are dead but allow they are all dead
	(c)	any one from: legal protection / ban hunting / AW (1) education programmes (1) (captive) breeding (1) remove predators / competitors (1)	1	allow reduce / stop use of pesticides ignore any reference to protecting where they live e.g. zoos / artificial ecosystems / reserves / protected areas ignore provide food ignore unqualified references to conservation programmes
	(d)	gorilla: endangered mammoth: extinct panda: endangered	2	three correct = 2 marks, two correct = 1 mark
		Total	5	

Question		Expected Answers	Marks	Additional Guidance
7	(a)	eyes on the front of the head / sharp / pointed teeth / large canines (1)	1	not just eyes / teeth allow directional ears ignore large teeth / large mouth
	(b)	food / water / shelter / mates (1)	1	allow prey
	(c) (i)	50 (1)	1	
	(ii)	1980 (1)	1	
	(iii)	increases / goes up (1) less were eaten (by the wolves) (1)	2	allow less wolves to eat them / fewer predators not none were eaten / no wolves eating them ignore just 'less wolves'
	Total		6	

Question		Expected Answers	Marks	Additional Guidance
8	(a)	oxygen (1)	1	allow O ₂ but ignore O, O ₂ or O ²
	(b)	glucose / sugar / carbohydrate (1)	1	not starch allow oxygen if part (a) was incorrect
	(c)	any two from: more light (1) more warmth (1) faster / more photosynthesis (1) more food / sugar / glucose made (1)	2	must be comparative ignore sun but allow sunlight allow idea of longer day light hours allow more light for photosynthesis (2) but light for photosynthesis = 0 as no comparison allow faster enzyme action
		Total	4	

Question		Expected Answers	Marks	Additional Guidance
9	(a)	nucleus (1)	1	allow chromosome / gene / DNA
	(b)	any two from: (plant cells) have chloroplasts / chlorophyll (1) (plant cells) have cell wall / cellulose (1) (plant cells) have (large) vacuole (1)	2	assume answer refers to plants unless otherwise stated allow show turgor allow (plant cells) make their own food / photosynthesise (1) allow starch grains / store starch (1) ignore references to shape ignore references to leaves e.g. have stomata
	(c)	diffusion (1)	1	allow transpiration / evaporation not osmosis
	(d)	(cells) divide (1)	1	allow mitosis allow (cells) split ignore meiosis
		Total	5	

Question		Expected Answers	Marks	Additional Guidance
10	(a)	food and oxygen (1)	1	more than one tick = 0
	(b)	(i) artery / vein / capillary (1)	1	allow named vessel eg aorta / vena cava allow venule or arteriole
		(ii) heart (1)	1	
	(c)	any two from: no nucleus (1) contains haemoglobin (1) thin / (partial) permeable membrane (1) small (size) (1) biconcave / disc shaped (1) flexible / can change shape (1) large surface area (compared to volume) (1)	2	allow contain iron not thin / (partial) permeable walls allow 'donut' shaped ignore round /dented
		Total	5	

Question		Expected Answers	Marks	Additional Guidance
11	(a)	(B)CDA (2) C somewhere before D (1) D somewhere before A (1)	2	eg ACD = 1 eg DCA = 1
	(b)	lines drawn pointing towards hole (1)	1	
	(c)	no (no mark) experiment is about light (not gravity) / geotropism is response to gravity (not light) / shoots are growing towards the light / shoots are growing upwards / are negatively geotropic / shows shoots are positively phototropic / shoots would grow down if positively geotropic / roots are positively geotropic (1)	1	must have answered no and given correct explanation for mark
		Total	4	

Question			Expected Answers	Marks	Additional Guidance
12	(a)	(i)	Fresno (1)	1	
		(ii)	891 (2) But 2673 / 3 (1)	2	correct answer no working out scores two if no answer on answer line look for answer in table
	(b)	(i)	any two from: sends out <u>runners</u> (1) plantlets / new plants grow (on runners) (1) (plantlets) put down / grow roots (1)	2	allow idea of genetically identical plants growing on the (runners) (1) allow idea of roots going into ground (1) allow labels on diagram allow plantlets heavy enough to fall to ground (1) allow mitosis (1) allow runners decay(1)
		(ii)	clones (1)	1	ignore cloning / twins
			Total	6	

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