

GCSE BIOLOGY - B2

JANUARY 2015 MARK SCHEME

Question		Marking details	Marks Available																				
1	(a)	<table border="1"> <thead> <tr> <th>Features</th> <th>Bacteria</th> <th>Algae</th> <th>Yeast</th> </tr> </thead> <tbody> <tr> <td>Cell wall</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>nucleus</td> <td>✗</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Chloroplast</td> <td>✗</td> <td>✓</td> <td>✗</td> </tr> <tr> <td>Reproduce by budding</td> <td>✗</td> <td>✗</td> <td>✓</td> </tr> </tbody> </table> <p>1mark per correct row;;; Assume blank = ✗</p>	Features	Bacteria	Algae	Yeast	Cell wall	✓	✓	✓	nucleus	✗	✓	✓	Chloroplast	✗	✓	✗	Reproduce by budding	✗	✗	✓	3
	Features	Bacteria	Algae	Yeast																			
Cell wall	✓	✓	✓																				
nucleus	✗	✓	✓																				
Chloroplast	✗	✓	✗																				
Reproduce by budding	✗	✗	✓																				
	(b)	<p>(i) Smaller;</p> <p>(ii) Cannot reproduce alone/needs a (living) cell for reproduction; Accept – no cell membrane/no cytoplasm NOT needs a cell to survive</p> <p>Question 1 total</p>	1 1 [5]																				

Question		Marking details	Marks Available
2	(a)	A trachea/cartilage ring; NOT windpipe B alveoli/ alveolus; Accept air sac	2
	(b)	(i) (Diaphragm) down/flattens; NOT contract (can be neutral) (Ribs) up and out/ribcage expands;	2
		(ii) Decreases	1
Question 2 Total			[5]

Question		Marking details	Marks Available					
3	(a)	(i) Nucleus;	1					
		(ii)	4					
		<table border="1"> <tr> <td>46,46;</td> <td>23,23,23,23;</td> </tr> <tr> <td>Growth/replacement of {worn out/damaged/old} cells/repair damaged tissue; NOT producing new cells</td> <td></td> </tr> <tr> <td></td> <td>Different/ non identical;</td> </tr> </table>	46,46;	23,23,23,23;	Growth/replacement of {worn out/damaged/old} cells/repair damaged tissue; NOT producing new cells			Different/ non identical;
	46,46;	23,23,23,23;						
	Growth/replacement of {worn out/damaged/old} cells/repair damaged tissue; NOT producing new cells							
		Different/ non identical;						
	(b)	(iii) Gametes;	1					
(i) Repair tissue/replace damaged tissues/{treat/cure} disease(named disease e.g. bone marrow transplants/ Parkinson's/blindness/repairing {tendon/joint injury}/spinal cord repair);		1						
(ii) Involves {destruction of/damaging} embryos/loss of potential life; Leading to ethical/religious/moral objection; 2 nd point linked to 1 st point		2						
Question 3 Total		[9]						

Question		Marking details	Marks Available	
4	(a)	High and low; (1) both for one mark Semi-permeable; (1)	2	
	(b)	(i)	3/ the strong solution of blackcurrant squash;	1
		(ii)	All readings correct (20 (column 2) + 24 (column 3));	1
		(iii)	2 bars of correct height in correct position;	1
		(iv)	2 and no change in <u>mass</u> /the potato chip was still 20g after 30 minutes; NOT weight	1
		(v)	Water concentration was higher outside the chip; Water {passes in/is absorbed}/chip gains water; Marks can be linked in either direction	2
		Question 4 Total	[8]	

Question		Marking details	Marks Available
5	(a)	(i) {Carbon dioxide/CO ₂ } and {oxygen/O ₂ };	1
		(ii) Chlorophyll;	1
	(b)	(i) Increases then {steady/plateau/reference to constant}; (increases) up to 4 a.u.;	2
		(ii) Two correct readings (13.5 & 16.5); Correct calculation (3 a.u.); Correct answer = 2 marks Allow one mark for two correct readings if answer incorrect	2
		(iii) {Carbon dioxide/CO ₂ }; NOT light/ temperature	1
	(c)	Starch; (formation of) cell walls;	2
Question 5 total			[9]

Question		Marking details	Marks Available
6/1	(a)	(i) extinct in the wild/ extinct;	1
		(ii) It will be {reduced/lower/smaller}/ there will be fewer species/less diverse;	1
	(b)	(i) Because they are receiving payment/they do not want the monkey to become extinct/ stop it becoming extinct;	1
		(ii) Any two from <ul style="list-style-type: none"> • Link up the remaining isolated pocket of rainforest (OWTTE); • Extend the corridors outside the area shown in the diagram (OWTTE); • {Widen/ thicken} corridors/ increase area of corridor; NOT larger • More than one corridor to each area; 	Max 2
(c)	(iii) Any two from: monkey can extend its range/increased habitat/more {area/space} to live in/can {move/spread} to different areas; breed with other monkeys outside its own pocket of rainforest; correct ref to gene pool; increase food {source/variety}/less competition for food; escape predation; isolated population have more chance of dying from disease;	Max 2	
	Any one from: SSSIs; captive breeding programme; NOT breeding in zoos/wildlife parks alone National parks; seed banks; {wildlife/nature} reserve; Legislation on deforestation;	Max 1	
		Question 6/1 Total	[8]

Question		Marking details	Marks Available		
7/2	(a)	(i) All correct 2 marks 1 error 1 mark, 2 errors 0 marks	2		
				Inspired air (%)	Expired air (%)
		Oxygen		21	16
		Carbon dioxide		0.03/0.04	4
		Nitrogen		79	79
	Water vapour	varies	1		
		(ii) (16%) oxygen in {expired air/air breathed out};	1		
		(iii) Sodium hydroxide/potassium hydroxide/soda lime; Accept Sofnolime (trade name in diving community)	1		
	(b)	(i) (The lime water in test tube A {remains/is}) {clear/colourless}; NOT no change/does not go cloudy/stays the same (The lime water in test tube B would turn) milky/cloudy;	2		
	(c)	Any one from Can {remain submerged/stay down} for longer; Smaller tank needed;	Max 1		
Question 7/2total			[7]		

Question		Marking details	Marks Available
8/3	(a)	The more cigarettes smoked the higher deaths. The more cigarettes smoked higher {incidence/ chances} of lung cancer (OWTTE); {lag/delay/gap} {between commencement of/ time that they smoke/ smoking/ cigarette consumption} and possibility of (death from) lung cancer (OWTTE); Accept the more cigarettes smoked, the higher the deaths from lung cancer and these are roughly 20 years apart = 2 marks	2
	(b)	Accept any year between 1943 & 1947;	1
		Question 8/3 total	[3]

Question	Marking details	Marks Available
9/4	<p>Indicative content:</p> <p>amylase digests/breaks down starch to glucose {pores/holes} in visking tubing/visking tubing is selectively permeable too small for starch <u>molecules/particles</u> to pass through/or ref to molecule size big enough to allow glucose <u>molecules/ particles</u> to diffuse through/or ref to molecule size water heated strongly/boiled with Benedict's reagent positive colour change (reference blue to green/orange/red) iodine solution added to water remains brown</p> <p>5 – 6 marks The candidate constructs an articulate, integrated account correctly linking relevant points, such as those in the indicative content, which shows sequential reasoning. The answer fully addresses the question with no irrelevant inclusions or significant omissions. The candidate uses appropriate scientific terminology and accurate spelling, punctuation and grammar.</p> <p>3 – 4 marks The candidate constructs an account correctly linking some relevant points, such as those in the indicative content, showing some reasoning. The answer addresses the question with some omissions. The candidate uses mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.</p> <p>1 – 2 marks The candidate makes some relevant points, such as those in the indicative content, showing limited reasoning. The answer addresses the question with significant omissions. The candidate uses limited scientific terminology and inaccuracies in spelling, punctuation and grammar.</p> <p>0 marks The candidate does not make any attempt or give a relevant answer worthy of credit.</p> <p>Question 9/4 Total</p>	<p>6</p> <p>[6]</p>