

Question	Marking details	Marks Available
6/1 (a)	(Obama) believes that embryonic stem cell research will lead to the {treatment/ cure} of many diseases/ treat {damaged tissue/ or correct example}. (OWTTE);	1
	(Gingrich) – reference to the ethical issues involved eg destruction of {embryos/ foetus/ <u>unborn</u> children}/ life is lost/ destroying (potential human) life; NOT - playing God	1
(b)	(i) <u>stem</u> cells;	1
	(ii) avoids ethical issues of {using/killing} {unborn children/ embryos/ foetus}/ cells more likely to be accepted by the body/less likelihood of rejection; NOT less chance of transfer of disease/ nothing is killed/ less controversial unqualified	1
Question 6/1 Total		[4]

Question	Marking details	Marks Available
7/2 (a)	(i) Bronchiole;	1
	(ii) carbon dioxide/CO ₂ (not CO ² /Co ₂ /CO2 etc);	1
(b)	dissolves in {moist/ water} lining (of alveolus)(not dissolves in water vapour)/ passes in solution; diffuses (no ref. to diffusion gradient required); diffuses in solution = 2 marks	2

(c)	<table border="1"> <thead> <tr> <th>Gas</th> <th>Inspired air (%)</th> <th>Expired air (%)</th> </tr> </thead> <tbody> <tr> <td>Oxygen</td> <td>21</td> <td>16;</td> </tr> <tr> <td>Carbon dioxide</td> <td>0.04;</td> <td>4</td> </tr> <tr> <td>Nitrogen</td> <td>79</td> <td>79</td> </tr> <tr> <td>Water vapour</td> <td>varies</td> <td>1</td> </tr> </tbody> </table>	Gas	Inspired air (%)	Expired air (%)	Oxygen	21	16;	Carbon dioxide	0.04;	4	Nitrogen	79	79	Water vapour	varies	1	2
Gas	Inspired air (%)	Expired air (%)															
Oxygen	21	16;															
Carbon dioxide	0.04;	4															
Nitrogen	79	79															
Water vapour	varies	1															

Question 7/2 Total

[6]

Question	Marking details	Marks Available
8/3 (a)	<u>carbon dioxide/CO₂</u> (not CO ² or Co ₂ etc) required for <u>photosynthesis/starch manufacture</u> ;	1
(b)	(i) {Boil/ heat} in {alcohol/methanol/ethanol}; Boiling water = neutral	1
	(ii) Iodine (solution);	1
	(iii) no CO ₂ / CO ₂ absorbed by sodium hydroxide; no photosynthesis; no starch produced;	3
(c)	Control/ to make a comparison;	1
(d)	because you wouldn't know whether it was the lack of light or lack of carbon dioxide which prevented photosynthesis/starch production; Answer must refer to <u>both</u> carbon dioxide and light limiting photosynthesis	1
Question 8/3 Total		[8]

Question	Marking details	Marks Available
9/4	<p>Indicative content</p> <p>The balloons represent lungs. The rubber sheet represents diaphragm. When rubber sheet is pulled down, the volume of air-tight space around balloons increases and pressure decreases/ drops/ goes down. The balloons inflate/ expand/ blow up as air is drawn in.</p> <p>5-6 marks</p> <p>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</p> <p>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</p> <p>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</p> <p>The candidate does not make any attempt or give a relevant answer worthy of credit</p>	6
Question 9/4 Total		[6]

Question	Marking details	Marks Available
5	(a) (i) arrow pointing to liver;	1
	(ii) arrow pointing to gall bladder; (ends of arrows must touch or go into each organ)	1
	(b) (i) speeds up (digestion)/ allows more to be digested;	1
	(ii) Break down <u>large</u> droplets of oil (into small droplets)/ emulsifies; NOT reference to molecules NOT reference to digestion increase <u>surface area</u> ; Must be clear that it is in reference to oil droplets, especially if first mark is not given for lipase to work/for enzyme action; (cannot be given alone)	3
Question 5 Total		[6]

Question	Marking details	Marks Available
6 (a)	<p>Mean catch/ mass caught increased;</p> <p>{Number/ percentage} of {<u>young</u> fish/ two year old fish} caught increased/ {number/ percentage} of {older fish/ 4-9 year old fish} caught decreased;</p>	2
(b)	<p>Larger mesh size means {<u>smaller/ younger</u>} fish are not {caught/escape}/ smaller fish thrown back;</p> <p>young fish survive to {grow/ reach breeding age}/ young fish grow to 3-4 years of age;</p> <p>So would {breed/ reproduce};</p> <p>(third marking point cannot be given alone)</p>	3
(c)	<p>{Reduce/ limit} the {quota/ size of catch/ mass of fish}/</p> <p>Restrict {days/ time} fishing boats can be used/ reduce {surface area/ size} of net/ reduce length of fishing season/ introduce no fishing;</p>	1
(d)	<p>Any two from</p> <p>Reference to less employment;</p> <p>Less fish sold/ reference to money;</p> <p>reduction of other species because cod is a predator/ cod eat other commercially important species;</p> <p>cost of buying new nets or equipment;</p>	2
Question 6 total		[8]

Question	Marking details	Marks Available
7 (a)	<p>Osmosis;</p> <p>Movement (of water) {from where it is in high concentration to low concentration/ down a concentration gradient} <u>into</u> the micro-organism;</p> <p>Via a semi permeable membrane;</p>	3
(b)	<p>(i) Mould(s)/ moulds (fungi);</p> <p>(ii) Removes water (from food)/ causes water to pass out (of food);</p> <p>NOT salt absorbs water from fish</p> <p>Until water activity is too low for micro-organisms (or named micro-organism) to survive/ water activity is less therefore no micro-organisms can survive;</p>	1
(c)	<p>Bacteria by division/ dividing into two/ dividing/ splitting/ fission;</p> <p>NOT mitosis</p> <p>Yeast by budding;</p>	2
Question 7 total		[8]

Question	Marking details	Marks Available
8	(a) (i) S;	1
	(ii) Because of sugar stored in the yeast;	1
	(iii) Sugar was used up/ no sugar left/ alcohol poisoned (killed) yeast;	1
	(iv) To show any gas (carbon dioxide) production was caused by yeast/ eliminate oxygen/ prevent aerobic respiration/ to be able to measure from {the same starting point/ zero}; NOT so no gas present	1
	(b) (i) Oxygen debt;	1
	(ii) Lactic acid;	1
	(iii) Would be reduced;	1
	(iv) Aerobic;	1
	Question 8 total	[8]

Question	Marking details	Marks Available
9	<p>Indicative content</p> <p>Two chains of alternating sugar and phosphate molecules connected by bases. The chains are twisted to form a double helix. There are 4 bases: adenine, thymine, cytosine and guanine. Base pairing occurs between A and T; C and G. Triplet codes determine types of amino acids. The order of amino acids will determine the particular protein produced.</p> <p>5-6 marks</p> <p>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</p> <p>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</p> <p>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</p> <p>The candidate does not make any attempt or give a relevant answer worthy of credit.</p> <p>Question 9 Total</p>	[6]