

Question	Marking details	Marks Available
6/1 (a)	Meiosis (correct spelling required);	1
(b)	STAGE 2 - 23, 23, 46, 46; STAGE 3 – 4 cells each containing 23;	1 1
(c)	Gametes/sex cells/sperm/eggs/ova; NOT daughter cells	1
(d)	Different;	1
(e)	Growth/cell replacement/repair (of damaged) { <u>tissues/cells</u> }; NOT asexual reproduction/mitosis/bacterial reproduction/ replication/ cloning	1
Question 6/1 Total		[6]

Question	Marking details	Marks Available
7/2 (a)	4 3 1 2 3 or 4 correct = 3 marks 2 correct = 2 marks 1 correct = 1 mark	3
(b)	Make reference to {avoiding bias/validity}; NOT {fair test/reliability} (could be neutral)/ not to favour an area/give a true result	1
	Question 7 Total	[4]

Question	Marking details	Marks Available
8/3 (a)	<ul style="list-style-type: none"> • Amylase digested/ broke down/hydrolysed; NOT turn/change • Starch to glucose; • which {diffused/ passed/ small enough to go} through the {visking tubing/membrane} (into the water); * <p>*Only accessed if second marking point awarded</p>	1 1 1
(b)	Starch <u>molecule too big</u> to pass through {visking tubing/ <u>membrane</u> };	1
(c)	Blood/blood stream;	1
(d)	1 mark for each correct row	2

Substance tested for	Reagent used	Colour of reagent	Colour with positive result
Starch	Iodine	Yellow-brown/ Orange/orange-brown/ yellow-orange NOT red/ yellow	blue- black
Glucose	Benedict's	blue	green/yellow/ orange/ /brown/brick red NOT red

Question 8/3 Total

[7]

Question	Marking details	Marks Available
9/4 (a)	Bronchiole	1
(b)	<p data-bbox="413 360 676 392">Indicative content:</p> <p data-bbox="413 412 1238 645">Air breathed in contains more oxygen than blood arriving at the alveolus. Oxygen dissolves in moisture (accept water) lining alveolus. Oxygen diffuses into blood through the thin alveolus wall. Blood in capillary arriving at alveolus contains more carbon dioxide than air in alveolus. Carbon dioxide diffuses into alveolus. Large surface area of alveolus means increased gas exchange.</p> <p data-bbox="413 696 576 728">5 – 6 marks</p> <p data-bbox="413 730 1238 931">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 data-bbox="413 965 576 996">3 – 4 marks</p> <p data-bbox="413 999 1238 1200">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 data-bbox="413 1234 576 1265">1 – 2 marks</p> <p data-bbox="413 1267 1238 1469">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 data-bbox="413 1503 528 1534">0 marks</p> <p data-bbox="413 1536 1203 1603">The candidate does not make any attempt or give a relevant answer worthy of credit.</p>	6
Question 9/4 Total		[7]

Question	Marking details	Marks Available
5	(a) (i) Liver – arrow & name;	1
	(ii) Gall bladder – arrow & name;	1
	(b) (i) Bile breaks {down/ up} large {lipid/fat/oil} drop(let)s <u>into</u> small drop(let)s; Accept bile emulsifies lipid/fat/oil NOT large molecules into small molecules Ref to pH is neutral for <u>increased/bigger/larger surface area</u> for enzyme/lipase action;	2
	(ii) All {lipid/ olive oil} digested/enzyme working flat out;	1
	(iii) Glycerol;	1
Question 5 total		[6]

Question	Marking details	Marks Available
6 (a)	<u>Enzyme –substrate complex;</u>	1
(b)	<u>Active site</u> is {changed/distorted/altered}/bonds in active site are broken; {Substrate/amino acid} cannot {fit/join/lock }; NOT match	2
(c)	Temperature; pH; NOT PH/Ph Concentration of substrate; Concentration of enzyme; Reject amount/volume/mass	Max 2
Question 6 total		[5]

Question	Marking details	Marks Available
7	(a) Carbon dioxide/CO ₂	1
	(b) As temperature increases salt concentration increases; as water is evaporated; (only awarded if 1 st mark awarded)	2
	(c) <ul style="list-style-type: none"> <li data-bbox="464 566 1161 647">• Osmosis; (reject if salt water or salt or solutions are moving) <li data-bbox="464 669 1139 696">• (When salt concentration is high) – water is lost; <li data-bbox="464 719 1206 902">• Correct statement about water potential/water moves {from where it is in high concentration to where it is in low concentration/ down a concentration gradient} (related to animals/surrounding solution); <li data-bbox="464 925 1206 1003">• Correct mention of selectively permeable membrane/ other correct form of words; 	1
		1
		1
		1
	Question 7 total	[7]

Question	Marking details	Marks Available
8	<ul style="list-style-type: none">• Active transport/uptake;• Requires <u>both</u> oxygen and glucose;• For respiration/release of energy;• Rate of uptake of glucose follows rate of uptake of cadmium/Rate of uptake of cadmium follows rate of uptake of glucose/the more the rate of uptake the more glucose is used;	1 1 1 1
	Question 8 Total	[4]

Question	Marking details	Marks Available
9 (a)	<p>_____;</p> <p>Answer = 2000; 2 marks for correct answer</p>	2
(b)	20/ number recaptured;	1
(c)	<p>Sample {size/area} may be too small/sample from only one part of lake; Sampling needs to be repeated (and averaged); Immigration; Predation may have reduced numbers marked/differential predation due to dye/dye makes fish more visible to predators; The dye adds bias to recapture/ dye makes fish easier to see to recapture; (ignore ref to time given to sampling)</p>	Max 3
(d)	<p>Line rises <u>from February</u>, peaks in {March/April} + then drops; one mark for 12 month scale; (accept letters/numbers for names of months)</p>	1 1
Question 9 Total		[8]

Question	Marking details	Marks Available
10	<p data-bbox="399 280 670 324">Indicative content</p> <p data-bbox="399 347 1173 392">Similarities: both break down glucose and <u>release</u> energy.</p> <p data-bbox="399 414 1220 593">Differences: muscle cells produce lactic acid and no carbon dioxide during anaerobic respiration. Aerobic respiration produces water and carbon dioxide. Aerobic uses oxygen and anaerobic does not. Anaerobic creates oxygen debt, aerobic does not.</p> <p data-bbox="399 616 1236 728">Aerobic is more efficient because it releases more energy per glucose molecule than anaerobic because it completely breaks down glucose.</p> <p data-bbox="399 750 558 795">5-6 marks</p> <p data-bbox="399 795 1244 1030">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 data-bbox="399 1052 558 1097">3-4 marks</p> <p data-bbox="399 1097 1228 1299">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 data-bbox="399 1321 558 1366">1-2 marks</p> <p data-bbox="399 1366 1220 1534">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 data-bbox="399 1556 534 1601">0 marks</p> <p data-bbox="399 1601 1204 1668">The candidate does not make any attempt or give a relevant answer worthy of credit</p> <p data-bbox="399 1691 670 1736">Question 10 Total</p>	[6]