BIOLOGY 2 (NEW) FOUNDATION AND HIGHER TIER

Question		Marking details		Marks Available
Q.6/1	(a)	Meiosis – spelling correct;		1
	(b)	40 in each cell;		1
			Question Total	**[2]**

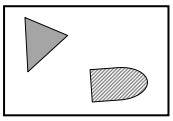
Question		Marking details	Marks Available
Q.7/2	(a)	peristalsis;	1
	(b)	Muscles in the wall of the oesophagus contract;	2
		And {push/ force} the food (on to the next section);	
		Question Total	**[3]**

Question			Marking details	Marks Available
Q.8/3	(a)		45/ 46%;	1
	(b)	(i)	65.5/ 66 years;	1
		(ii)	Lung cancer/ emphysema/ walls of alveoli rupture/ owtte/ correct ref to damage to cilia/ drying mucus; NOT reference to tar alone/ bronchitis;	1
	(c)		Live longer/ could expect to live to 85/ avoid earlier death; NOT less chance of dying; (Live longer) without a (smoking related) {disability/ cancer/ named damage};	2
			Question Total	**[5]**

Question			Marking details	Marks Available
Q.9/4	(a)		To show <u>carbon dioxide</u>/ CO_2 (not CO^2) is needed for <u>photosynthesis/ starch</u> production;	1
	(b)	(i)	To prevent <u>soil</u> organisms affecting the experiment (OWTTE);	1
		(ii)	Absorb carbon dioxide / CO_2;	1
		(iii)	Control/ correct ref to using B to compare to A/ to make a comparison;	1
		(iv)	Form an air tight seal/ make the apparatus air tight / prevent {gases/ carbon dioxide/ air} going in or out of the apparatus; NOT oxygen (can be neutral);	1
	(c)		Destarch/ remove starch;	1
	(d)	(i)	Apparatus **A** Colour – brown/ iodine colour + Reason – <u>no starch</u> present/ no photosynthesis ∴<u>no starch;</u> (**both** required for one mark)	[1]
		(ii)	Apparatus **B** Colour – black/ blue black + Reason –<u>starch</u> present/ photosynthesis occurred ∴<u>starch</u> present<u>;</u> (**both** required for one mark);	[1]
			Question Total	**[8]**

Question	Marking details	Marks Available
Q.10/5	*Indicative content* Diaphragm contracts Diaphragm flattens/moves down Intercostals muscles contract Rib cages moves up and out/raised Thoracic volume/accept chest volume/accept space around the lungs increases Pressure decreases Lungs inflate Air drawn into lungs through nose/nasal passages/trachea/windpipe 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. 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. 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. 0 marks The candidate does not make any attempt or give a relevant answer worthy of credit	
	Question Total	**[6]**

BIOLOGY 2 (NEW) HIGHER TIER

Question			Marking details	Marks Available
Q.6	(a)	(i)	Enzyme works in {acid pH/ lower pH/ 4.5}/ (ORA); NOT low pH	1
		(ii)	Enzyme denatured or destroyed;	1
		(iii)	Low temperature; Meant few collisions between enzyme and {protein/ substrate} / takes {longer to make/ less} enzyme substrate complexes;	2
	(b)		As below, ignore chemical bond if drawn; 	1
	(c)		Lock and key;	1
			Question Total	**[6]**

Question			Marking details	Marks Available
Q.7	(a)	(i)	Description must include DNA / RNA/ genetic material/ genes/ nucleic acid; and protein {coat/ outside};	2
		(ii)	III;	1
	(b)		Insects can become {resistant/ immune}/Could harm useful insects/ insecticides could enter food chain/ could bioaccumulate;	1
	(c)		Biological control/ biocontrol;	1
	(d)		May not be specific to target species (may use other words to convey this)/ could affect {useful/ other} insects/ could harm other animals; May not be able to {survive/ reproduce} in {environmental factors/ climate}/ reproduce successfully; Fungus could spread out of control/ could become a pest itself; Midges could become immune to the fungus;	2
			Question Total	**[7]**

Question			Marking details	Marks Available
Q.8	(a)	(i)	Lowers/ decreases;	1
		(ii)	Less lactic acid; Greater volume of {air/ gas} breathed in (and out); lactic acid level drops {faster/ sooner};	3
	(b)		glucose;	1
	(c)		{Increased/ more} (rate of) <u>aerobic</u> respiration/ more carbon dioxide produced by <u>aerobic</u> respiration;	1
	(d)		{More/ all} glucose completely broken down/ less anaerobic respiration (NOT no anaerobic respiration)/ more aerobic respiration/ no oxygen debt/ more oxygen available to repay oxygen debt/ extra oxygen breaks down lactic acid;	1
			Question Total	**[7]**

Question			Marking details	Marks Available
Q.9	(a)	(i)	P= $\frac{56 \times 48}{16}$; = 168; Method (1) Answer (1)	2
	(b)		Repeat the exercise/ take {more/ larger} samples; NOT take larger sample area.	1
	(c)		They are balanced/ the same/ equal/ they don't happen;	1
	(d)		Could eat them/ could be predators; Could compete for food/ eat their food/ compete for breeding space; Could introduce disease; (in fact *Astacus fluviatilis*, the American red clawed crayfish, has introduced a fungal parasite)	3
			Question Total	**[7]**

Question			Marking details	Marks Available
Q.10	(a)		*Indicative content* Fresh water decreased the concentration of salt to below the level in which oysters live. Osmosis caused water to pass into the oysters from where it was in high concentration to where it is in low concentration/ down a concentration gradient/ from a low solute potential to a high solute concentration through a selectively permeable membrane (accept semi permeable membrane). This diluted the body fluids/ blood resulting in death. 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. 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. 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. 0 marks The candidate does not make any attempt or give a relevant answer worthy of credit	
	(b)	(i)	Active transport;	1
		(ii)	Can carry salts/ ions against/ up a concentration gradient; Requires energy;	2
			Question Total	**[9]**