

Question	Marking details	Marks Available
6/1 (a)	Phloem;	1
(b) (i)	100/ 100.5; Litres/l/dm ³ ; Allow 100 000/ 100 500/ 1 x 10 ⁵ ; cm ³ / ml; Unit mark can only be given if value mark given	2
(ii)	any two from; same <ul style="list-style-type: none"> • volumes {water/ Topgrow} • light intensity/duration • temperature NOT heat • length of growing time • harvest time • {variety/ type} of tomato • type of soil • pH • height/ mass/age/ stage of growth of plant NOT size NOT 'amount'/ same {place/ environment}/ CO ₂ / 'level'	2
(iii) I	80;	1
II	{lower /smaller} mean mass/{smaller/ lighter} tomatoes;	1
(c)	any two from; phosphate; NOT phosphorus potassium; magnesium; calcium; iron; named trace element	2
Question 6/1 Total		[9]

Question	Marking details	Marks Available
8/3	<p>Any 3 from:</p> <ul style="list-style-type: none">• Less space required (for a given mass of product);• The product is more predictable;• The product is more reliable;• it is made under controlled conditions (cf farming);• It uses waste from other processes;• It produces less waste/methane;• Not {weather/ climate} dependent;• Continuous production/ produced on demand;• Disease free; <p>Responses must refer to production, not consumption, eg.</p> <p>Suitable for vegetarians</p> <p>NOT quick/ cheap</p>	3
	Question 8/3 Total	[3]

Question	Marking details	Marks Available
9/4	<p>Indicative content</p> <p>The muscle of the right ventricle contracts and pumps blood through the valves of the pulmonary artery into the lungs. Blood then leaves the lungs, passing into the pulmonary vein, re-entering the heart in the left atrium.</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)	<p>Conclusion 1:</p> <p>No bacteria next to [Penicillium/fungus]/ clear area {by/ around} fungus/ bacteria only grow around edges;</p> <p>Conclusion 2:</p> <p>Effect decreases with distance from source/ effect decreases towards the edges/ clear area is circular;</p>	2
(b) (i)	antibiotic;	1
(b) (ii)	<p>Overuse/ Over prescription/ giving too many antibiotics;</p> <p>become resistant;</p> <p>NOT immune/ bacteria adapt (unqualified)</p>	2
(c)	<p>any sensible aseptic method;</p> <ul style="list-style-type: none"> • wash hands (a lot/regularly.....) • use of sterilising fluids/cloths • single use instruments/materials • use gloves • antibacterial gels • clean hospitals thoroughly • description of nurses uniform remaining in hospital <p>NOT aseptic techniques unqualified</p>	1
Question 5 Total		[6]

Question	Marking details	Marks Available
6 (a)	Correct position of label;	1
(b) (i)	Light;	1
(ii)	Retina;	1
(iii)	Iris (muscle); NOT ciliary muscle	1
(c)	Speed/ fast / rapid/ quick/ owtte; Protection/ owtte; Automatic/ owtte;	3
	Question 6 total	[7]

Question	Marking details	Marks Available
7 (a)	To keep the volumes the same/ so volume of 1cm^3 cubes is the same as the 8cm^3 cube;	1
(b)	(i) Osmosis;	1
	(ii) Water passed in; From where it was in high concentration to low concentration/ down a gradient; Via a semi/ selectively/ partially permeable membrane;	3
	(iii) {% increase in mass was faster/ more water was taken in} in cubes of side 1cm; Because there is a greater surface area; Root hairs increase surface area/ have a large surface area;	3
(c)	Active transport;	1
	Question 7 total	[9]

Question	Marking details	Marks Available
8	(a) (i) 0-1 years;	1
	(ii) memory cells; antigens; trigger {white blood cells/ lymphocytes}; to form clones/ reproduce/ multiply / undergo mitosis; {to increase production of/ more} antibodies/ produce antibodies more quickly;	5
	(b) (i) (Edward) Jenner (correct spelling);	1
	(ii) Flu virus mutates rapidly/ antigens keep changing/ protein coat keeps changing; NOT evolve	1
	Question 8 total	[8]

Question	Marking details	Marks Available
9	<p>Indicative content</p> <p>The brain monitors whether there is too much water in the blood, and so little ADH is released. Dilute urine is excreted because the kidney tubules do not absorb much water to pass it back to the blood. If there is too little water in the blood, then more ADH is released causing concentrated urine to be excreted because the kidney tubules absorb a lot of water and pass it into the blood.</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
		[6]