

Multiple Choice Answers

Q3: A

Q8: A

Multiple Choice Answers

Q7: C

Q26: B

2(a)	<i>any three from:</i> large surface area ; thin, (wall / surface,) / short diffusion distance / one cell thick ; good blood supply / network of capillaries ; good ventilation (with air) ;
2(b)(i)	P and S ;
2(b)(ii)	keeps the trachea / bronchi / airway open OR prevents collapse of trachea / bronchi / airway ;
2(c)(i)	$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$;;
2(c)(ii)	<i>any three from:</i> 1 increased carbon dioxide in blood ; 2 (high) carbon dioxide (in blood) detected by the brain ; 3 increases <u>impulses</u> to (named) muscles used in breathing / AW ; 4 increases contraction of (named) muscles used in breathing ; 5 adrenaline is released ; 6 to increase rate and depth of breathing ;

2(a)(i)	Outline – single clear line, no shading ; Size – height bigger than 84 mm ; Detail 1 ; textured point at tip Detail 2 ; shape of cupule (drawn with a dip at the top right side and left pointing-stalk)
2(a)(ii)	84 ± 1 (mm) ; 25(mm) ;;
2(a)(iii)	<i>any two from;</i> <i>Turkey oak has:</i> flatter top of nut ; less nut above cupule / AW ; spines on the cupule / AW ; does not have a stalk / AW ; lighter colour ;
2(b)(i)	<i>any two from;</i> same type of soil ; lack of light ; temperature ; timing of watering ; time allowed for germination ; number of acorns from each species ;

2(b)(ii)	two y-axes OR one y-axis, with appropriate scale for both datasets and units, and one x-axis labelled ; suitable scale and occupies at least half the grid in both directions ; six bars plotted accurately $\pm$ half a small square, with gaps between the different species ; key that clearly identifies each dataset ;
2(b)(iii)	(to obtain a) representative sample / avoid bias ;
2(b)(iv)	62.2(%) ;
2(c)	biuret ;

1(a)	species (name) ;
1(b)(i)	nucleus ; chloroplast ;
1(b)(ii)	<i>any two from:</i> cytoplasm ; cell wall ; cell membrane ; nucleus ;
1(b)(iii)	animal and plant ;
1(c)(i)	6.5 (tablets) ;;;
1(c)(ii)	<i>any four from:</i> 1 <i>Chlorella</i> contains vitamin C ; 2 vitamin C needed for, wound healing / immune system (function) OR vitamin C prevents, scurvy / bleeding gums ; 3 <i>Chlorella</i> contains, <u>more / AW</u> , calcium ; 4 calcium, prevents rickets / strengthens bones or teeth ; 5 evidence of data manipulation of values for calcium or vitamin C ;
1(c)(iii)	citrus fruit / (named) fruit / (named) vegetable ;
1(d)(i)	<i>ref. to</i> (protein) <u>carriers</u> (in membranes) ; movement of, molecules / ions, from low to high concentration / using energy ;
1(d)(ii)	amino acids ;

4(a)	magnesium (ions) / AVP ;
4(b)(i)	<i>any four from:</i> 1 (algae) photosynthesise in light / no photosynthesis in the dark ; 2 carbon dioxide is, used / absorbed / taken / AW, in photosynthesis ; 3 (purple because CO₂ used in) photosynthesis results in, pH increase / becomes (more) alkaline / less acidic ; 4 (algae) respire in light and dark ; 5 carbon dioxide is, produced / released / AW, in respiration ; 6 in light there is a higher (rate of) photosynthesis than (the rate of) respiration ; 7 (yellow because CO₂ given off from) respiration results in, pH decrease / more acidic / less alkaline / becomes (nearer to) neutral ;
4(b)(ii)	<i>total of three from:</i> X: light (intensity) ; <i>Y max two from:</i> temperature ; carbon dioxide concentration ; (amount of) chlorophyll / (number of) chloroplasts ; water ;
4(c)(i)	<i>tissue:</i> phloem ; <i>molecule:</i> amino acids ;

4(c)(ii)	<i>any six from:</i> 1 (starch is broken down by) physical / mechanical, digestion ; 2 (physical digestion / AW) uses teeth / occurs in the, mouth / (involves churning) in stomach ; 3 (physical digestion) increases surface area (for faster enzyme activity) ; 4 chemical digestion / break down (of insoluble molecules) into (smaller) <u>soluble</u> molecules (by enzymes) ; 5 salivary glands / pancreas, secrete / make, <u>amylase</u> ; 6 <u>amylase</u> (breaks down) starch to <u>maltose</u> ; 7 <u>maltase</u> is found on <u>epithelium</u> (lining) of, small intestine / duodenum / ileum ; 8 (maltase) breaks down <u>maltose</u> to <u>glucose</u> ; 9 (optimum) pH for, amylase / maltase / carbohydrase is, neutral / 7 / 8 ;
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5(a)	<i>any two from:</i> single circulation / blood flows through the heart once on one circuit of the body ; ref. to, one atrium <u>and</u> one ventricle / two chambers in the heart ; no septum in the heart ; only deoxygenated blood / no separation of oxygenated and deoxygenated blood, in the heart ; blood is under less pressure ;
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5(b)	<i>any three from:</i> 1 prevents mixing of oxygenated and deoxygenated blood ; 2 blood able to flow at high pressure (to the body) ; 3 efficient / fast, supply of, blood / glucose / oxygen / nutrients ; 4 efficient / fast, removal of, waste / carbon dioxide / urea / lactic acid ; 5 allows efficient filtration in kidneys (for excretion) ; 6 to allow / maintain, a high, metabolic rate / rate of respiration ; 7 lower pressure, in pulmonary circuit / to lungs ; 8 to prevent damage to, delicate tissue / capillaries, in lungs ; 9 allows more time for gas exchange ; 10 AVP ;
5(c)(i)	C ; A ; D ; B ;
5(c)(ii)	hepatic portal vein ;
5(d)	<i>any four from:</i> 1 deamination / removal of nitrogen-containing part of amino acids ; 2 removing excess amino acids (from blood regulating concentration of amino acids (in blood)) ; 3 forming urea ; 4 urea, released / diffuses, into blood (to travel to kidney) ; 5 breakdown / respiration / oxidation, of lactic acid ; 6&7 AVP ;