

Multiple Choice Answers

Q1: C
Q2: C
Q3: A
Q5: D
Q7: A
Q8: A
Q10: B
Q12: B
Q14: D
Q15: C
Q17: A

Multiple Choice Answers

Q5: D

2(a)(i)	letter on Fig. 6.1	name of the blood vessel	carries oxygenated blood
	A	pulmonary artery	no
	B	aorta	yes
	C	hepatic portal vein	no
	D	renal vein	no
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2(a)(ii)	<i>name:</i> valve ; <i>function:</i> prevents back flow of blood / AW ;		
2(b)(i)	<i>any two from:</i> (only) two chambers ; no, septum / left and right sides / AW ; fewer valves ; heart (chamber) walls of similar thickness (to each other) ; fewer blood vessels (going to and from the heart) ;		

2(b)(ii)	<i>any four from:</i> 1 blood is pumped to the lungs then to the body / blood goes through the heart twice in one complete journey / double circulation ; 2 oxygenated and deoxygenated blood, are kept separate / do not mix / separated by septum ; 3 efficient, supply of blood / glucose / oxygen / nutrients (to, the body / AW) ; 4 efficient, removal / carbon dioxide / urea / lactic acid (from, body / AW); 5 provides high(er) pressure (in body) ; 6 which allow a high, metabolic <u>rate</u> / <u>rate</u> of respiration ; 7 which allows filtration in kidneys (for excretion) ; 8 low(er) pressure in, pulmonary, artery / circuit / AW ; 9 to prevent damage to (capillaries in the) lungs ; 10 allow more time for, gas exchange / absorption of oxygen ; 11 AVP ;
2(c)(i)	red blood cell ;
2(c)(ii)	actual size = image size ÷ magnification ;
2(c)(iii)	31.5 (µm) ;

3(a)	increases the rate of a (chemical) reaction ; (and is) not changed (during the reaction) / AW ;
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3(b)(i)	<i>any six from:</i> 1 <u>amylase</u> breaks down starch ; 2 iodine (solution) turns blue-black in the presence of starch ; <i>idea that at 0 °C / at the start</i> 3 least, starch break down / enzyme activity / amylase activity ; 4 fewest, successful collisions / enzyme substrate-complexes formed ; 5 <i>idea that</i> particles do not have sufficient (kinetic) energy ; <i>idea as temperature increases</i> 6 the kinetic energy (of particles) increases ; 7 (starch and amylase) collide more, frequently / successfully or more enzyme-substrate complexes form ; 8 faster break down of starch ; 9 40 °C is the <u>optimum</u> temperature ;
3(b)(ii)	<i>any two from:</i> <i>ref to specificity ;</i> <i>idea that</i> protease has a different shaped <u>active site</u> (to amylase) / starch and the <u>active site</u> (of protease) are not complementary ; unable to bind / unable to form an enzyme-substrate complex ;
3(c)	pH / AVP ;

3(a)(i)	axes labelled with units ; suitable linear scale and plotted area occupies at least half the grid in both directions ; all points plotted accurately $\pm$ half a small square ; suitable line drawn between all points plotted ;
3(a)(ii)	as the height increases the vital capacity increases / AW ;
3(a)(iii)	any indication on graph at 175 cm OR indication of correct value on the vital capacity axis ; correct value recorded from the candidate's graph ;
3(b)	biuret (reagent) ;

1(a)(i)	table drawn with a minimum of two columns and a header line ; appropriate column / row headings, with units for height ; recording two (final) heights ; (1%) 13 ± 1 (mm) and (4%) 23 ± 1 (mm) recorded ;
1(a)(ii)	the higher concentration (of glucose solution) the, greater / faster, the (rate of) respiration (in yeast) ; ora
1(a)(iii)	<i>independent variable:</i> concentration of glucose ; <i>dependent variable:</i> height (of the yeast in the large test-tube) ;
1(a)(iv)	(use a) thermostatically controlled water-bath / AVP ;
1(a)(v)	to avoid, contamination / AW ;
1(b)	<i>glucose:</i> 3 (cm ³) and <i>distilled water:</i> 2 (cm ³) ;
1(c)	add Benedict's (reagent) ;
	heat ;
1(d)(i)	cloudy / white / milky ;
1(d)(ii)	<i>any one from:</i> keep away from, flames / fire / Bunsen / burner ; cover the container (to prevent evaporation) ; (use in a) well-ventilated area / fume cupboard / AW ; wear goggles ;

1(a)	thermometer ;
1(b)	table drawn with a minimum of two columns and a header line ; appropriate column / row headings ; three colours recorded correctly for tubes A , B and W ;
1(c)	the greater the (invertase/enzyme) concentration the greater the concentration of, reducing sugars / glucose, produced ; ora
1(d)	as a <u>control</u> ; idea that, water does not break down sucrose / sucrose does not break down on its own ;
1(e)	concentration of invertase/enzyme (extract) ;
1(f)	<i>any one from:</i> to make sure test-tubes are at the same temperature ; to give a sufficient / high rate of reaction / AW ; so that the test-tubes are at the same temperature as the water-bath ;
1(g)	to prevent contamination / AW ;
1(h)	biuret ;