

Multiple Choice Answers

Q19: C

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 ;

2	1 independent variable different intensities of exercise / different exercises / exercise for different lengths of time ; 2 dependent variable after / during, exercise measure, heart rate / pulse rate ; 3 and 4 detail of method ;; • description of named exercise of different intensities • ensuring heart rate returns to resting rate • use of a heart rate monitor 5, 6 and 7 constant variables ;;; • same speed / distance / time, of exercise • same age of people • same sex of people • same, person / fitness level / mass of person / height of person / BMI • same, place / time of day / temperature / weather 8 at least three trials / two more repeats ; 9 relevant safety precaution ;
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2(a)(i)	<i>any two from:</i> volume of yeast ; time for equilibration / AW ; same time for, counting bubbles / respiration ; same type of yeast ;
2(a)(ii)	<i>error:</i> bubbles may be different sizes / too fast to count / AW ; <i>improvement:</i> measure the volume ;
2(b)(i)	26 ;;
2(b)(ii)	axes labelled ; suitable linear scale and plotted area occupies at least half the grid in both directions ; plots accurate to $\pm$ half small square ; smooth line / curve of best fit or points joined with straight lines ;
2(b)(iii)	as temperature increases, the number of bubbles / rate of bubble production, increases and then decreases ; reference to, peak / AW, at 50°C ;
2(c)	use limewater ; turns cloudy / milky / forms a white precipitate ; OR hydrogencarbonate indicator ; turns yellow ;

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)	$\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} ; ;$
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 ;