

Question 5 (Answer: **D**)

- Bases pair A with T and C with G.
- So work along the strand replacing each base with its partner.
- A–C–T–T–A–G–A–T becomes T–G–A–A–T–C–T–A.

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 ;

Question 5 (Answer: **D**)

- In DNA the bases pair A with T and C with G.
- So a purine always pairs with a pyrimidine.
- T and A is the only valid pairing offered.

Question 6 (Answer: **C**)

- The test for protein is the biuret test.
- No heating is needed – that is what separates it from Benedict's.
- A positive result changes the colour from blue to purple.

Question 21 (Answer: **C**)

- Glucose is a simple sugar with six carbon atoms.
- Its formula is $C_6H_{12}O_6$ – twice as many hydrogens as carbons or oxygens.
- $C_{12}H_{22}O_{11}$ would be a disaccharide such as sucrose or maltose.

2(a)(i)	blue ;
2(a)(ii)	volume of DCPIP ; concentration of DCPIP ;
2(b)(i)	axes labelled with units ; suitable linear scale and data occupies at least half the grid in both directions ; five points plotted accurately $\pm$ half a small square ; suitable line drawn ;
2(b)(ii)	intercept indicated on the candidate's graph at 1.2 cm^3 ; concentration correct for intercept at $1.2 \text{ cm}^3 \pm$ half a small square ;
2(c)(i)	storing decreases the vitamin C content (of apple juice) ;
2(c)(ii)	a result that does not fit the, pattern / trend / AW ;
2(c)(iii)	170 (circled) ;
2(c)(iv)	-61.8 ;;;

2(d)(i)	Outline is a single clear line with no shading ; Size –at least half the available space used ; Detail 1 : six sepals and a stalk ; Detail 2 : (at least) five white stripes on the lower side, radiating out and shown as double lines and four seeds shown as circles / ovals ;
2(d)(ii)	PQ = 61 ± 1 (mm) ; 33.9 (mm) ;;
2(e)	add Benedict's (reagent / solution) ; heat ;

1(a)(i)	table drawn with minimum two columns and a header line ; appropriate column / row headings with units ; three values recorded ; three correct measurements in mm, ± 1 mm ;
1(a)(ii)	increased temperature increases the activity of, catalase / enzyme / ora ;
1(a)(iii)	<i>independent variable</i> : temperature ; <i>dependent variable</i> : height (of the foam) ;
1(a)(iv)	to equilibrate / to allow the temperature of the test-tube contents to become the same as the water / AW ;
1(a)(v)	identify / exclude / ignore, anomalous results ;
1(a)(vi)	<i>any one from</i> ; cut, away from body / on a white tile / on a hard surface / AW ; keep fingers out of the grinder ;

1(b)(i)	14.2 (cm ³) ;;;
1(b)(ii)	use a (gas) syringe / a (upturned) measuring cylinder over water / AW ;
1(c)(i)	blue-black ;
1(c)(ii)	DCPIP ;

1(d)	<i>independent variable:</i> 1 at least two different light intensities ; <i>dependent variable:</i> 2 volume of oxygen produced in a set time / time to produce a set volume of oxygen ; <i>method ;;;</i> 3 method of changing light intensity 4 method of measuring volume of oxygen produced 5 method of keeping temperature constant / use of heat shield / LED bulb explained 6 and 7 from variables kept constant ;; • same (species / type of) plant • surface area / size / amount, of plant • pH • temperature • carbon dioxide concentration of the water / same conc(entrated) of sodium hydrogencarbonate • light wavelength 8 two or more replicates / repeat investigation two or more times ; 9 safety precaution – gloves / keep lamp away from water / do not touch hot lamps / cutting (if cutting up plant) ;
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Question 8 (Answer: C)

- Carbohydrates contain carbon, hydrogen and oxygen only.
- Proteins contain those three plus nitrogen, in every amino acid's amino group.
- So nitrogen is the element present in proteins but not in carbohydrates.