

Question 6 (Answer: C)

- A non-reducing sugar must first be broken into its reducing monosaccharides.
- So hydrolyse with dilute hydrochloric acid, then neutralise with sodium hydroxide.
- Only then does Benedict's solution give a positive result – neutralising *before* Benedict's is essential.

Question 6 (Answer: B)

- Iodine orange means no starch; Benedict's orange means a reducing sugar is present.
- Biuret purple means protein is present; a clear emulsion test means no lipid.
- So look for the pair that is a reducing sugar plus a protein fragment.

Question 8 (Answer: C)

- A non-reducing sugar gives nothing with Benedict's until it is hydrolysed.
- So step X is acid hydrolysis and step Y is neutralisation with alkali.
- At a *very low* concentration the final Benedict's colour only just changes – green rather than red.

Question 6 (Answer: A)

- Fructose is a reducing sugar, so Benedict's is positive even before hydrolysis.
- Trehalose is non-reducing, so it contributes nothing until it is hydrolysed.
- After hydrolysis both sugars give a positive result, so the test is positive both times.

1(a)(i)	states 19 cm ³ as the volume of distilled water, W to use ;
1(a)(ii)	1 shows transfer of 10cm ³ to each beaker from the previous beaker ; 2 shows 10 cm ³ of W added to each beaker ;
1(a)(iii)	states the volume of Benedict's to add as 2 cm ³ or a volume greater than 2 cm ³ <u>and</u> explains that this is because equal or excess volume of Benedict's solution is needed ;
1(a)(iv)	results show the correct trend for times of known concentrations, the higher the percentage concentration of glucose the shorter the time to first colour change ;
1(a)(v)	1 (heading for independent variable) sample time and minutes <u>and</u> to the left of the dependent variable ; 2 (heading for dependent variable) time to first appearance of a colour change <u>and</u> s and no units in the body of the table ; 3 results for each sampling time ; 4 results recorded to nearest whole second ;
1(a)(vi)	states source of error as the time to first colour change is subjective ;
1(a)(vii)	results used correctly to estimate the concentration of glucose in the samples taken at 5, 10 and 15 minutes ;
1(a)(viii)	(concentration higher at 15 minutes) glucose had more time to diffuse out of the dialysis tubing into the water ;
1(b)(i)	1 x-axis: time sample was taken from the blood / min <u>and</u> y-axis: concentration in the blood / arbitrary units ; 2 scale on x-axis: 5 to 2 cm, labelled at least every 2 cm <u>and</u> y-axis: 50 to 2 cm, labelled at least every 2 cm ; 3 correct plotting of points using small dots in circles or crosses ; 4 plots joined with thin line passing through all points ;
1(b)(ii)	1 shows $(280 - 75) / 280 \times 100$; 2 correct answer to 2 significant figures ;
1(b)(iii)	1 (0 to 10 minutes) reference to a steep concentration gradient (between the blood and dialysate) ; 2 (10 to 20 minutes) reference to a less steep concentration gradient (between the blood and dialysate) ;