Model Answers: Hard

Q1

The correct answer is **B** because:

- A positive Benedict's test is the reagent changing colour from blue to brick-red/orange when heated (or yellow or green if a small amount of sugar is present in a sample).
- DCPIP is a reagent that can be used to indicate the presence of Vitamin C within a sample; it is a blue solution when oxidised. When mixed with Vitamin C DCPIP is reduced, becoming colourless.

A is incorrect as	this food sample contains sugar, protein and Vitamin C.
C is incorrect as	this food sample does not contain starch only.
D is incorrect as	this food sample contains sugar, starch and Vitamin C.

Q2

The correct answer is **A** because **amino acids** are the basic building blocks of **protein** molecules (the order of amino acids needed to build a protein is determined by the sequence of DNA bases in genes). Amino acids always contain the elements **carbon**, **hydrogen**, **oxygen** and **nitrogen**.

B is incorrect as	glycerol is one of the basic units of fats (a type of lipid) but lipids do not contain nitrogen.
C is incorrect as	glycerol is one of the basic units of fats (a type of lipid) but lipids do contain oxygen, not nitrogen. .
D is incorrect as	bases are the building blocks of DNA, and they contain the three main elements listed in the table as well as nitrogen and phosphorus.

Q3

The correct answer is **A** because:

- Benedict's solution tests for the presence of reducing sugars. A positive colour change indicating the presence of reducing sugar is from blue to brick red / orange (sometimes green if there is not a large amount of sugar present).
- DCPIP solution tests for the presence of Vitamin C. It contains a blue dye that in the presence of Vitamin C turns colourless, allowing the original colour of the solution being tested to be seen.

B is incorrect as	this food sample contains sugar and lipids (fats and oils), as ethanol has shown a positive test result. In the presence of lipids ethanol changes from colourless to form a cloudy milky-white emulsion.
C is incorrect as	this food sample contains protein (due to the positive colour change of the Biuret solution from blue to purple/lilac) and Vitamin C.
D is incorrect as	this food sample contains Vitamin C and lipids.