SALTERS ADVANCED CHEMISTRY

"CHECK YOUR NOTES" : ENGINEERING PROTEINS

1	Proteins are condensation polymers formed from amino acid monomers.	☐
2	The general structure of amino acids.	☐
3	The acid-base properties of amino acids and the formation of zwitterions.	☐
4	The formation and hydrolysis of the peptide link between amino acid residues in proteins (**Storyline EP2**; **Activity EP2.2**).	☐
5	The use of paper chromatography to identify amino acids (**Activity EP2.2**).	☐
6	The importance of amino acid sequence in determining the properties of proteins, and the diversity of proteins in living things (**Storyline EP2**)**.**	☐
7	Stereo-isomers: *cis-trans* and optical isomers (enantiomers).	☐
8	The use of the term *chiral* as applied to a molecule.	☐
9	How nuclear magnetic resonance (n.m.r.) spectroscopy can be used for the elucidation of molecular structure.	☐
10	The interpretation of n.m.r. spectra for simple compounds given relevant information (**Activity EP2.3**).	☐
11	The expression for the equilibrium constant, K_c, for a given reaction.	☐
12	The way in which changes of temperature and pressure affect the magnitude of the equilibrium constant.	☐
13	The use of values of K_c, together with given data on equilibrium concentrations, to calculate the composition of equilibrium mixtures.	☐
14	The primary, secondary and tertiary structures of proteins (**Storyline EP4**).	☐
15	The role of hydrogen bonds and other intermolecular forces in determining the structure and properties of proteins (**Storyline EP4**).	☐
16	The double helix structure of DNA in terms of a sugar-phosphate backbone and attached bases (**Storyline EP2**).	☐
17	The significance of hydrogen bonding in the pairing of bases in DNA, and the replication of genetic information (**Storyline EP2**; **Activities EP2.7** and **EP2.8**).	☐
18	How DNA encodes for the amino acid sequence in a protein.	☐
19	The use of empirical rate equations of the form: rate=$k[A]^m[B]^n$ where *m* and *n* are integers.	☐
20	The meaning of the terms: *rate of reaction*, *rate constant*, *order of reaction* (both overall and with respect to a given reagent).	☐
21	Experimental methods for measuring the rate of reaction.	☐
22	How to use experimental data to find the order of a reaction (zero, first or second).	☐
23	How to use given data to calculate half-lives for a reaction.	☐
24	The industrial importance of enzymes (**Storyline EP6**).	☐
25	The characteristics of enzyme catalysis, including: specificity, temperature and pH sensitivity, and inhibition (**Storyline EP6**).	☐
26	The specificity of enzymes in terms of a simple 'lock and key' model of enzyme action.	☐
27	The technique of 'genetic engineering' and its applications (**Storyline EP3** and **EP5**).	☐