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| **I can** | | **Year 12 Chemistry 2022 Unit 3 & 4 Exam Revision** | Check | Teacher initial |
| * the reversibility of chemical reactions can be explained in terms of the activation energies of the forward and reverse reactions |  |  |
| * the effect of changes of temperature on chemical systems initially at equilibrium can be predicted by considering the enthalpy changes for the forward and reverse reactions; this can be represented on energy profile diagrams and explained by the changes in the rates of the forward and reverse reactions |  |  |
| * collision theory can be used to explain and predict the effects of concentration, temperature, pressure, the presence of catalysts and surface area of reactants on the rates of chemical reactions |  |  |
| * acid-base indicators are weak acids, or weak bases, in which the acidic form is a different colour from the basic form |  |  |
| * understand chemical synthesis processes may involve the construction of reaction sequences with more than one chemical reaction, including the hydration of ethene to form ethanol and the subsequent reaction of ethanol with acetic (ethanoic) acid to produce ethyl ethanoate * understand the base hydrolysis (saponification) of fats (triglycerides) produces glycerol and the salt of a long chain fatty acid (soap) |  |  |
| * understand the structure of soaps contains a non-polar hydrocarbon chain and a carboxylate group; the structure of the anionic detergents derived from dodecylbenzene contains a non-polar hydrocarbon chain and a sulfonate group |  |  |
| * explain the cleaning action of soaps and detergents in terms of their non-polar hydrocarbon chain and charged group. * explain the properties of soaps and detergents in hard water in terms of the solubilities of their calcium salts. * Surfactants |  |  |
| * recognise that industry produces a vast range of plastics, including addition polymers (for example polyethene, polytetrafluoroethene) and condensation polymers (for example, nylon and polyethylene terephthalate [PET]) which have different properties and uses |  |  |
| * explain the varied structures of different plastics due to characteristics, including cross-linking, chain length, and intermolecular forces leads to a range of distinct properties and consequent uses * Properties of LDPE and HDPE including diagrams of LDPE and HDPE   -Addition reactions can be used to produce polymers, including polyethene and polytetrafluoroethene   * condensation reactions can be used to produce polymers, including polyamides and polyesters   - the different structures, properties and related uses for polyethene,polytetrafluoroethene, nylon and polyethylene terephthalate [PET]) |  |  |
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