



## ASSESSMENT INFORMATION FOR STUDENTS – SUMMER 2021

### SUBJECT: CHEMISTRY

### YEAR GROUP: 13

**All tests to be carried out on Thursday of each week.**

Date	Paper	Content (module numbers in brackets)
w/c 19.4.21	Paper 1 - modules 1, 2, 3 & 5  32 marks 40 mins	1. Avogadro constant. (2) 2. Activation energy graph data. (5) 3. Concentration calculation & pH. (2 & 5) 4. Group 2. (3) 5. Relative atomic mass, ionic dot and cross diagram, mole & mass calculations. (2) Explanation of properties for bonding in metal, ionic and covalent substances. (2) Born Haber (hydration and lattice enthalpy). (5) 6. Halogen reactivity, using chlorine for water treatment, moles/gas volume (non-standard) calculation. (2 & 3)
w/c 26.4.21	Paper 1 - modules 1, 2, 3 & 5  28 marks 35 mins	1. Titration practical. (1) 2. K <sub>p</sub> . (5) 3. Rate constant units. (5) 4. K <sub>c</sub> and catalysts. (3) 5. Equilibria conditions and use of catalysts. (3) Entropy and Gibbs free energy calculation. (5) 6. Acid & metal reaction, weak acid, redox. (2) K <sub>a</sub> and conjugate acid-base (5) pH of weak acid and buffers. (5)
w/c 3.5.21	Paper 2 - modules 1, 2, 4 & 6  30 marks 40 mins	1. Naming isomers. (4) 2. Sigma and pi bonds. (4) 3. Structure of polymers. (4) 4. Alcohol reactions/stereoisomers. (4) 5. Carboxylic acids & phenol reactions. (6) 6. Alcohol reactions & solubility of carboxylic acids (2, 4 & 6), polymers (4) Carboxylic acid reactions. (6) 7. Organic practical (1) Percentage yield/moles & mass calculation. (2) 8. Elemental analysis, mass spectroscopy, IR spectroscopy & proton NMR. (4 & 6)



Date	Paper	Content (module numbers in brackets)
w/c 10.5.21	Paper 2 - modules 1, 2, 4 & 6  35 marks 45 mins	<ol style="list-style-type: none"><li>1. Alcohol and carboxylic acid reactions. (4, 6)</li><li>2. Organic oxidation/reflux. (4, 6)</li><li>3. <math>^{13}\text{C}</math> NMR. (6)</li><li>4. Naming esters. (4, 6)</li><li>5. Structural isomers. (4)</li><li>6. Benzene reactions. (6)</li><li>7. Homologous series/molecular formulae/chemical tests for organic functional groups/aldehyde reaction mechanism. (4, 6)</li><li>8. Synthesis reaction flowchart including naming reagents. Naming functional groups, acid hydrolysis, calculation. (4, 6)</li></ol>
w/c 17.5.21	Paper 3 - all modules  31 marks 40 mins	<ol style="list-style-type: none"><li>1. Difference in boiling points of organic molecules, ideal gas equation, <math>^{13}\text{C}</math> NMR, molecular formula, amino acids. (2, 4, 6)</li><li>2. Equation similar to Arrhenius, <math>K_p</math>, factors affecting position of equilibrium, graph plotting and analysis. (3, 5)</li><li>3. Bond angles in covalent molecules, conjugate acid-base pairs, <math>\text{p}K_a</math>. (2, 5) Mechanism for alkaline hydrolysis of esters (6)</li></ol>