	Edexcel
	START OF TERM 1 NOTES
Topic 11	**equlibrium II**
1. - 5.	Kp Kc Exo- and endo- thermic reactions Effect of temperature Equlibrium constant: temperature, pressue and catalysts effects
Topic 12	**Acid- base equilibria**
1.- 24.	Bronsted-Lowry acid and bases pH determination and calculations Degree of dissociation: acids and bases Ka Kw pKa and pKw Analysis of data: pH, acids and bases, Ka Titration curves Indicators Buffer solutions: actions; calculations; pH; Ka; titration curves Strong and weak acids: enthalpy changes of neutralisation values Control of pH of blood
Topic 13	**Energetics II**
13A **1. - 11.** **13B** **12. - 22.**	**Lattice energy** Definitions: lattice enthalpy; electron affinity; enthalpy change of atomisation Born-Haber cycles Ionic bond strength Degree of Covalent bonding Polarisation Enthalpy change of: solution; hydration. Energy cycles/diagrams Ionic charges and ionic radii Entropy Entropy changes: understanding and calculations
Topic 14	**Redox II**
1. - 19.	Oxidation; reduction Standard electrode potential: conditions; features; methods; use EMF Half cells: cell diagrams Storage cells Fuel cells Redox titrations
Topic 15	**Transition metals**
15A **1. - 19.**	**Principles of transition metal chemistry** Period 4: electronic configurations; atomic charge etc d-block elements Transition metals Ligands Dative bonding Complex ions Coloured ions in solutions of transition metals Coordination number

	Monodentate ligands
	Octahedral shapes of complexes
	Tetrahedral shapes of complexes
	Square planar complexes
	Bidentate ligands
	Multidentate ligands
	Haemoglobin
	START OF TERM 2 NOTES
15B	**Reactions of transition metal elements**
20. - 35.	Vanadium: oxidation states; colours; redox reactions
	Observations and writing equations
	Ligand exchange and colour changes
	Coordination numbers
	Catalysts: homogeneous and heterogeneous
	Catalytic converters
Topic 16	**Kinetics II**
1.- 12.	Definitions
	Rate equations: use; justification
	Expeiments to investigate reaction rates
	Rate of reaction and half-life
	Rate of reactions: orders; rate-determining steps
	Reaction mechanisms
	Hydrolysis of halogenoalkanes
	Activation energy from experimental data
Topic 17	**Organic chemistry II**
17A	**Chirality**
1. - 5.	Optical isomerism
	Nature of racemic mixtures
	SN1 and SN2 mechanisms
17B	**Carbonyl compounds**
6. - 8 .	Functional group identification: aldehydes and ketones
	Reactions of carbonyl compounds with many reagents
17C	**Carboxylic acids**
9. - 16.	Functional group identification: carboxylic acids
	Affects of hydrogen bonding
	Preparation and reactions of carboxylic acids
	Acyl chlorides: identification; reactions
	Esters and polyesters
Topic 18	**Organic chemistry III**
18A	**Arenes - Benzene**
	Benzene: delocalised model of bonding; functional groups; reactions;
1. - 7.	mechanism of electrophilic substituition
	Reaction of phenol with bromine water
18B	**Amines, amides, amino acids and proteins**
8. - 17.	Functional groups; reactions; basicity; preparation of aliphatic amines
	Peptide bonds
18C	**Organic synthesis**
	Analysis of data: Empirical formulae; molecular formulae; structural
18. - 22.	formulae; IR; Mass spectra; NMR etc
	Increasing length of carbon chains
	Preparation and purification of organic compounds
Topic 19	**Modern analytical techniques II**
19A	**Mass spectrometry**
1	

19B	**NMR**
2. - 5.	
19C	**Chromatography**
6. - 8.	