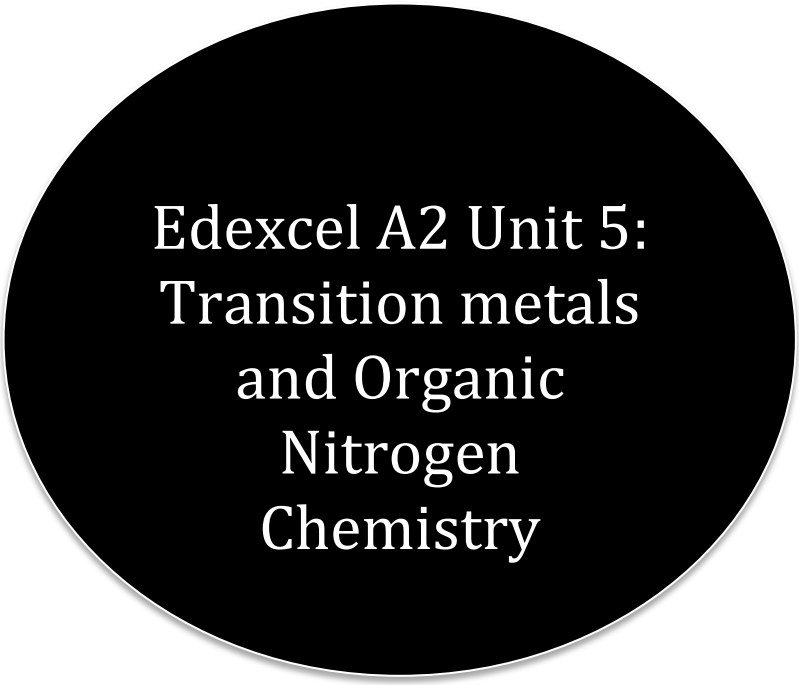
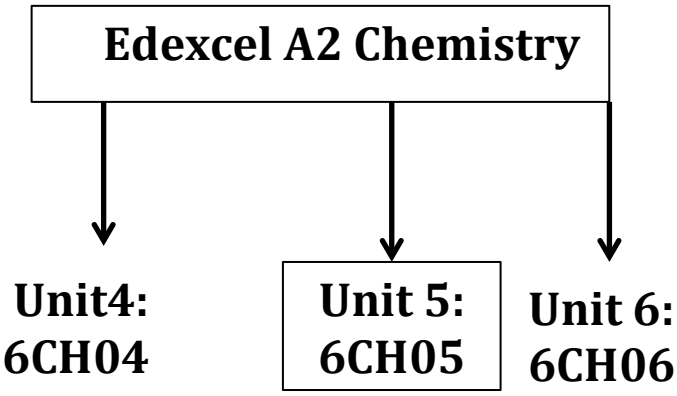
Edexcel A2 GCE Chemistry (9CH01)





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Unit 6CH05: Transition Metals & Organic Nitrogen Chemistry

1. Exam paper: Transition Metals & Organic Nitrogen Chemistry
10th June 2015 (afternoon)

20 % of Advanced GCE Biology

Overview of content

1. Module 1: Redox and chemistry of transition metals.
2. Module 2: Organic chemistry – arenes, nitrogen compounds and synthesis.

Overview of assessment

1. The unit is assessed through a 1-hour and 40 min examination paper set and marked by Edexcel.

2. The total number of marks is 90 and contains **Section A** (MCQs) and **Section B** (mixture of short answer and extended answer questions) and **Section C** (Extended answer questions in contemporary context).

3. Grades A*–E are available.

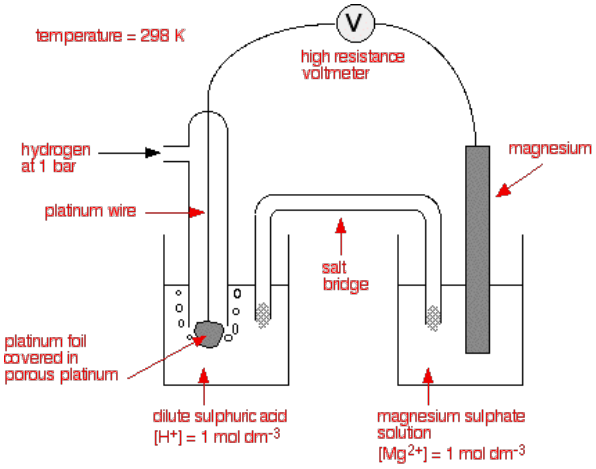
4. Grades assessment by year:

Year	Raw Marks to 90 % UMS - A*	Raw Marks to 80 % UMS grade 'A'
Jan 2009	-	-
Jun 2009	-	-
Jan 2010	-	-
Jun 2010	73	66
Jan 2011	72	65
Jun 2011	80	72
Jan 2012	75	69
Jun 2012	75	68
Jan 2013	79	73
Jun 2013	80	74
Jun 2013 -R	69	62
Jun 2014	62	57
Jun 2014 -R	64	59
Jun 2015	?	?

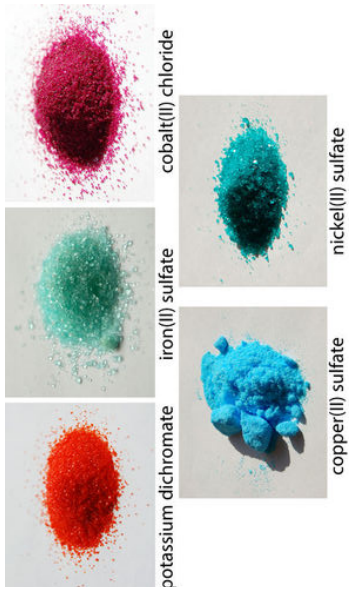
Edexcel A2 GCE Chemistry

A2 unit 6CH05: Transition Metals and Organic Nitrogen Chemistry

Module 1: *Redox chemistry*

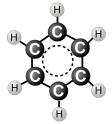


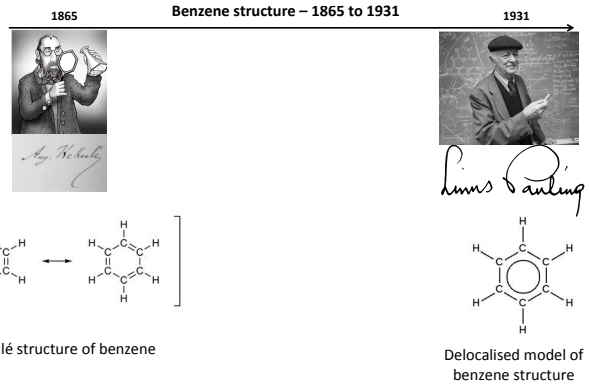
Module 2: Transition metals

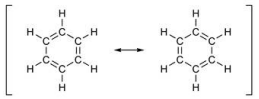


Module 3: Further organic chemistry

Arenes







Kekulé structure of benzene

Delocalised model of benzene structure

How BioChem Tuition prepares their students for 6CH05: Transition Metals and Organic Nitrogen Chemistry*?*

BioChem Tuition has a three-pronged strategy to attack 6CH05 that helps students to attain A or A*.

1. **Detailed 6CH05 knowledge:** The students will study the specification of 6CH05 alongside extensive practice of examination style questions to help them retain the content of the specification. The students will receive detailed 6CH05 notes prepared by BioChem Tuition.

Key features

- ✓ 6CH05 specification notes.
- ✓ 6CH05 examination style past examination questions.
- ✓ 1-2-1 help in understanding the key examiner points.
- ✓ Revision notes and charts to aid revision.

2. **Practice Edexcel past examination papers (1995-2014):** The students will complete at least 14 years of Edexcel past exam papers. BioChem Tuition will provide all the past papers in printed form to the students. The student's are required to complete past papers, which are checked and marked in light of the official examiner report and mark scheme. Any mistakes will be followed up to ensure the mistakes are not repeated. The students will be shown how to maximise their marks by following our exam technique and also methods to improve comprehension for scientific questions.

Key features

- ✓ 10 years of past examination papers practice.
- ✓ 1-2-1 help in understanding the exam technique.
- ✓ Revisit the mistakes and practice relevant questions to ensure the mistakes are not repeated.
- ✓ Past paper practice can be extended by solving 6CH05 style questions from AQA, CIE and OCR exam boards.

3. **Mock examination practice:** Mock 6CH05 examination practice to give student feedback on the likely grade achievable in the exams.

Key features

- ✓ Mock examination practice to simulate exam experience, which will be marked, graded and feedback on mistakes provided.

6CH05 Tuition Plan

Tuition Plan - Transition Metals & Organic Nitrogen chemistry	
Stage 1: Specification Topics	**Tuition time**
Module 1& 2: Redox Equilibria and Transition Metals	**12 hours**
TOPIC 1: Application of Redox Equilibria • Redox reactions, standard electrode potentials, calculate standard cell potentials. • Predict the thermodynamic stability of reactions. • Carry out Redox titrations to estimate the iron in iron tablets and iodine thiosulphate titrations. • Fuel cells – alcohol fuel cells and methanol fuel cells. • Breathalysers	**6 hour**
TOPIC 2: Transition metals and their chemistry • Transition metals, electronic configuration, successive ionization energies, • Properties of transition metals including their use as catalysts. • Shapes of transition metals complex ions. • Chemistry of Copper and Chromium • Investigate ligand substitution reactions. • Colors of transition metals ions in solution. • Ligand exchange and amphoteric behavior of transition metal ions. • Uses of transition metal ions in sunglasses and chemotherapy drugs.	
• Practice of past examination style questions on **Redox chemistry and Transition metal ion chemistry**	**6 hours**

Module 3: Organic Chemistry – arenes, nitrogen compounds and synthesis	**8 hours**
• **Arenes:** Structure, stability and reactions of benzene, phenol and its reactions. • **Organic nitrogen compounds:** Derivatives of ammonia, amino acids and typical behavior of amino acids, behavior of primary amines, reduction of aromatic nitro compounds, azo dye formation, addition and condensation polymers. • **Organic synthesis:** combustion analysis, use of analytical techniques to determine the structure of molecule, planning reaction schemes, hazard and risk, steriospecificity of compounds, combinatorial chemistry and sold phase synthesis.	**4 hours**
• Practice of past examination style questions on **Organic chemistry – arenes, nitrogen compounds and organic synthesis.**	**4 hours**
Stage 2: Past paper practice	**10 hours**
• Practice of past examination papers from 1995 to 2014 relevant to **6CH05: Transition metals and organic nitrogen chemistry** ✓ At least 10 years of past examination papers practice. ✓ 1-2-1 help in understanding the exam technique. ✓ Revisit the mistakes and practice relevant questions to ensure the mistakes are not repeated. ✓ Past paper solving 6CH05 style questions from other exam boards such as AQA, CIE and OCR can extend practice.	**10 hours**