

**A LEVEL
BOOKLET**

A LEVEL

The purpose of this booklet is to provide information about the curriculum opportunities available for our Year12/13 'A' Level students at the Benghazi European School.

Our curriculum has been designed to maximize the achievement of our students in Year 11 and to provide a clear route for success up to the age of University entry. Students will have the advantage of a balanced programme that challenges them to develop the knowledge and skills needed for success in their future.

As a London Edexcel Centre we offer our students the opportunity to follow the required number of A Level subjects to enable them to enter universities anywhere in the world.

ENTRY REQUIREMENTS

All students wishing to undertake GCE 'A' Level studies at the Benghazi European School **must** have achieved higher level (C-A*) passes in six subjects at IGCSE/GCSE level standard. Two of these passes must be in Maths and English. If a student fails English and/or Maths he/she will be allowed to re-sit these subjects in a future examination session and will be allowed to undertake 'A' level studies provided he/she has six other passes at grade C or above. These two subjects are compulsory for entry into further education.

This condition will be strictly adhered to in the interest of our students as the demands of 'A' Level are vastly greater than those of IGCSE.

THE CURRICULUM

We offer full 'A' Levels in the following subjects:

- Arabic
- Biology
- Business Studies
- Chemistry
- English Literature
- French
- History
- Mathematics
- Physics

In the past, A level students typically chose three subjects and sat exams at the end of two years. Now an A level consists of **AS** (advanced subsidiary) and **A2** units. In the first year (usually year 12), students can choose to study up to five subjects and sit AS level exams. At the end of the first year they have two options for each subject:

- take an AS level only and gain a recognised qualification, or
- continue for a second year and go for the full A level.

Either way, the good news is:

- AS levels allow the student to mix a number of subjects – he/she can keep his/her options open a little longer.
- If the student is worried about his/her future after the first year – maybe he/she wants a job or a gap year, he/she can't face more exams or he/she thinks a different type of qualification is the way forward – he/she has something to show for the work, rather than feeling he/she has wasted a year.
- If he/she stays on into an A2 year, he/she has control over the subjects he/she can study. He/she can pay more attention to the subjects he/she enjoys and needs for the future.

GCE IN ARABIC

SPECIFICATION OVERVIEW

Developed in consultation with teachers, the Advanced Subsidiary (AS) and Advanced Level (A2) GCE in Arabic specification rewards Arabic language skills and knowledge through student-focused assessment. With appealing content and opportunities to gain greater understanding of other cultures, it can prepare students to become well-informed and effective communicators.

KEY FEATURES

At AS:

- a clear learning focus and control of assessment for students and teachers
- new topic areas and grammar lists
- a logical progression from IGCSE with a focus on language

At A2:

- rewards advanced research skills
- acknowledges the importance of knowledge and understanding of the Arabic culture
- facilitates literary study.

With minimal prescription and maximum choice, this specification aims to engage students so that they enjoy Advanced Level Arabic language learning and achieve their full potential.

COURSE CONTENTS

AS Unit 1: Understanding and Written Response in Arabic

This unit consists of three sections.

- Section A: Reading
- Section B: Translation
- Section C: Essay

Students are required to convey understanding of written Arabic through a series of reading tasks. They also need to draw upon and apply their knowledge of Arabic language, grammar and lexis to produce a short translation from Arabic into English, as well as demonstrate an ability to manipulate Arabic language in continuous writing.

Students will be expected to recognise and use Arabic in a variety of contexts and in relation to the following general topic areas:

- Youth culture and concerns
- Lifestyle: health and fitness
- The world around us: travel, tourism, environmental issues and the Arabic-speaking world
- Education and employment.

ASSESSMENT

There will be a 2 hour 45 minute paper in three sections which will be set and marked by **EDEXCEL**.

SECTION A: Students will need to understand, retrieve and convey information from a short series of different Arabic-language texts. They will be required to provide a mix of non-verbal and Arabic-language responses. In addition, marks will be given for vocalisation of text produced in response to one of the questions.

SECTION B: Students will be assessed on their ability to transfer meaning from Arabic into English. They will be required to apply their knowledge of Arabic language, grammar and lexis to produce a short translation from Arabic into English.

SECTION C: Students will be required to write a 220-270 word essay, in Arabic, in response to a short Arabic-language stimulus and related bullet points. The assessment rewards learners for communication relevant information effectively as well as for the quality of the Arabic language produced.

A2: UNIT 2: Understanding, Written Response and Research in Arabic ASSESSMENT

There will be a three hour paper which will be set and marked by **EDEXCEL**.

CONTENT SUMMARY

This unit consists of three sections.

SECTION A: Reading

SECTION B: Translation

SECTION C: Essays on chosen topic(s) and/or text(s)

Students will be required to demonstrate skills in advanced level Arabic reading and in the transfer of meaning from English into Arabic. To promote research and a greater knowledge and understanding of Arabic culture and/or society, students must produce two Arabic-language essays in response to questions related to their chosen topic(s) and/or text(s).

Students will be expected to recognise and use Arabic in a variety of contexts and in relation to the following general topic areas:

- Youth culture and concerns
- Lifestyle: health and fitness
- The world around us: travel, tourism, environmental issues and the Arabic-speaking world
- Education and employment
- Customs, traditions, beliefs and religions
- National and international events: past, present and future
- Literature and the arts.

ASSESSMENT

One 3 hour paper in three sections.

SECTION A: Students will be required to read an Arabic-language passage and to retrieve and convey information from this via a series of questions and answers in Arabic.

SECTION B: Students will be expected to undertake a short translation from English into Arabic.

SECTION C: Students must answer two questions, in Arabic, that each relates to a topic or a text chosen from the prescribed list. A choice of two questions will be offered for each of the prescribed topics and texts.

TOPICS OR TEXTS FOR SECTION C

Students must choose to focus their study on one of the following topics or texts.

TOPICS

1. Arab history in the 20th century
2. Aspects of study
3. * Geography
4. Politics and Arab organisations
5. Economy

2. Arab culture

Aspects of study

- Art
- Architecture
- Music

- Entertainment

3. Arab Socio-culture

Aspects of study

- Customs and traditions
- The role of women
- Religion
- Social issues

TEXTS

4. Naguib Mahfouz: al-Liss wa al-Kilab
5. Ibn Al-Muqaffa': Kalilah wa Dimnah
6. Yahya Haqqi: Qindil Umm Hashim

The examination is based on the Arabic version of the above texts.

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BIOLOGY

AIMS

The aims of the **GCE** in Biology are to enable students to:

- develop their interest in, and enthusiasm for, biology including developing interest in further study and careers in the subject
- appreciate how society makes decisions about biology-related issues and how biology contributes to the success of the economy and society
- develop and demonstrate a deeper appreciation of the skills, knowledge and understanding of **How Science Works**
- develop essential knowledge and understanding of different areas of biology and how they relate to each other.

KNOWLEDGE AND UNDERSTANDING

The **Advanced GCE** specification requires students to:

- recognise, recall and show understanding of scientific knowledge
- select, organise and communicate relevant information in a variety of forms
- analyse and evaluate scientific knowledge and processes
- apply scientific knowledge and processes to unfamiliar situations
- assess the validity, reliability and credibility of scientific information.

PRACTICAL BIOLOGY AND INVESTIGATIVE SKILLS

This specification requires students to:

- use theories, models and ideas to develop and modify scientific explanations
- use knowledge and understanding to pose scientific questions, define scientific problems, present scientific arguments and scientific ideas
- use appropriate methodology, including ICT, to answer scientific questions and solve scientific problems
- carry out experimental and investigative activities, including appropriate risk management, in a range of contexts

- analyse and interpret data to provide evidence, recognising correlations and casual relationships
- evaluate methodology, evidence and data, and resolve conflicting evidence
- appreciate the tentative nature of scientific knowledge
- communicate information and ideas in appropriate ways using appropriate terminology
- consider applications and implications of science and appreciate their associated benefits and risks
- consider ethical issues in the treatment of humans, other organisms and the environment
- appreciate the role of the scientific community in validating new knowledge and ensuring integrity
- appreciate the ways in which science is used to inform decision making about issues to benefit society.

HOW SCIENCE WORKS

Students will be required to:

- explain how the development of scientific theories involves hypothesising, collecting and interpreting data and using creative thinking
- explain the importance of modelling as a way of developing scientific understanding
- distinguish between questions that science can address, and those which science cannot address
- identify scientific questions or problems within a given context
- apply scientific theories to answer scientific questions or address scientific problems
- justify methods, techniques and processes used during scientific investigations, including use of ICT, to collect valid and reliable data and produce scientific theories for a chosen question or problem
- produce a risk assessment before carrying out a range of practical work
- evaluate the validity of inferences made from data in terms of the methods, techniques and processes used to collect and analyse the data, recognising any systematic or random errors present or conflicting evidence

- explain how scientific theories are developed, refined, supported or refuted as new data or new interpretations of data become available
- present scientific information using text, graphics and other media as appropriate using scientific terminology with reference to data and credible sources
- evaluate activities in terms of their associated benefits and risks to humans
- discuss how science influences decisions on an individual, local, national or international level.

ASSESSMENT

There will be three papers for **AS Level** and three papers for **A2 Level**. These papers will be externally set and externally marked by **EDEXCEL**.

Unit 1: Lifestyle, Transport, Genes and Health

Written Paper: 1 hour 15 minutes: 80 marks

Unit 2: Development, Plants and the Environment

Written Paper: 1 hour 15 minutes: 80 marks

Unit 3: Practical Biology and Research Skills

Written Paper: 1 hour 30 minutes: 40 marks

Unit 4: The Natural Environment and Species Survival

Written Paper: 1 hour 30 minutes: 90 marks

Unit 5: Energy, Exercise and Coordination

Written Paper: 1 hour 30 minutes: 90 marks

Unit 6: Practical Biology and Investigative Skills

Written Paper: 1 hour 30 minutes: 45 marks

BUSINESS STUDIES

The Edexcel Advanced Subsidiary and Advanced GCE in Business Studies specification aims to encourage students to:

- develop an interest in and enthusiasm for the study of business
- gain a holistic understanding of business
- develop a critical understanding of organizations and their ability to meet the society's needs and wants
- understand that business behavior can be studied from a range of perspectives
- generate enterprising and creative solutions to business problems and issues
- be aware of the ethical dilemmas and responsibilities faced by organizations and individuals
- acquire a range of relevant business and generic skills, including decision making, problem solving, the challenging of assumptions and the qualification and management of information.

The Advanced Subsidiary and Advanced GCE in Business Studies specification requires students to:

- investigate different types of business organizations which could be set up to develop and sell a product or service idea in a local, national or international marketplace. At A2 level, students will study the ways in which companies grow bearing in mind the markets in which companies are operating
- be able to analyse numerical information to identify, for example, poor cash flow or labour productivity and the reasons for this
- promote a holistic understanding of business through considering how a new business idea is developed, understanding how a business is managed, how its performance is analysed and how it could trade overseas.

The Advanced Subsidiary and Advanced GCE in Business Studies specification requires students to:

- use both qualitative and quantitative methods to make justifiable decisions, taking into account opportunity cost.

Edexcel's Advanced GCE in Business Studies comprises four units and contains an Advanced Subsidiary subset of two AS units.

- The advanced Subsidiary GCE in Business Studies is the first half of the GCE course and consists of Units 1 and 2a. It may be awarded as a discrete qualification or contribute 50 per cent of the total Advanced GCE marks.
- The full Advanced GCE in Business Studies award consists of the two AS units (Units 1 and 2a), plus two A2 units (Units 3 and 4a) which make up the other 50 per cent of the

Advanced GCE. Students wishing to take the full Advanced GCE must, therefore, complete all four units.

Unit 1: developing New Business Ideas

- Externally assessed 50% of the total AS marks: 25% of the total GCE marks

Content summary:

This unit covers the characteristics students would need to develop to be successful in business and how new or existing businesses generate their product or service ideas and test them through market research. Students should also consider the competition in the market; the economic climate; how the business might be financed and how much revenue the idea might generate.

Assessment:

Examination of 1 hour 15 minutes in two sections.

- **Section A:** supported by multiple choice questions
- **Section B:** questions based on data.

Unit 2a: Managing the Business

- Externally assessed 50% of the total AS marks: 25% of the total GCE marks

Content summary:

This unit covers key activities which students may be involved in if they were to set up and/or manage a business whether small, medium-sized or large. It also introduces students to some basic management tools and models which will be developed in the A2 qualifications.

Assessment:

Examination of 1 hour 15 minutes in two sections.

- **Section A:** supported multiple-choice questions.
- **Section B:** questions based on data.

Unit 3: International Business

- Externally assessed: 50% of the total of the A2 marks: 25% of the total GCE marks

Content summary:

The aim of this unit is to introduce the student to the world of international business and issues which a company trading internationally would have to consider.

Assessment:

Examination of 1 hour 30 minutes in two sections.

- **Section A:** questions based on data.
- **Section B:** case study and questions.

Unit 4a: Making Business Decisions

- Externally assessed 50% of the total A2 marks: 25% of the total GCE marks

Content summary:

In this unit, students will be able to assess the current competitiveness of a business through performance and non performance indicators. They will analyse corporate objectives and strategy on the basis of these indicators and on external influences to the business. Students will be required to assess the causes and effects of change on a business and examine how the company could manage risk effectively.

Assessment:

Examination of 1 hour 30 minutes in two sections.

- **Section A:** questions based on data.
- **Section B: decision-making report and questions. (Context of decision-making report pre-released on www.edexcel.com in June of the previous year.)**

CHEMISTRY

AIMS

The aims of the **EDEXCEL Advanced Subsidiary GCE** and the **Advanced Level GCE** in Chemistry are to develop:

- student's interest in, and enthusiasm for chemistry, including developing an interest in further study and careers in chemistry
- an appreciation of how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society
- a deeper understanding of the skills, knowledge and understanding of *How Science Works*
- essential knowledge and understanding of different areas of the subject and how they related to each other.

HOW SCIENCE WORKS

This EDEXCEL Advanced Subsidiary GCE and Advanced Level GCE specification requires students to develop the skills, knowledge and understanding of *How Science Works*, which are described as follows:

- use theories, models and ideas to develop and modify scientific explanations
- use knowledge and understanding to pose scientific questions, define scientific problems and present scientific arguments and ideas
- use appropriate methodology, including ICT, to answer scientific questions and solve scientific problems
- carry out experimental and investigative activities, including appropriate risk management, in a range of contexts
- analyse and interpret data to provide evidence, recognising correlations and casual relationships
- evaluate methodology, evidence and data and resolve conflicting evidence
- appreciate the tentative nature of scientific knowledge
- communicate information and ideas in appropriate ways using appropriate terminology

- consider the application and implications of science and appreciate their associated benefits and risks
- consider ethical issues in the treatment of humans, other organisms and the environment
- appreciate the role of the scientific community in validating new knowledge and ensuring integrity
- appreciate the ways in which society uses science to inform decision making

These statements have been embedded within the specification and will be assessed both in the examinations and as part of the internal assessment.

EXPERIMENTAL AND INVESTIGATIVE SKILLS

This EDEXCEL Advanced Subsidiary GCE and advanced Level GCE specification requires students to develop a range of experimental and investigative skills. Important practicals that all students must carry out are listed within the unit specification, at both AS and A2 level. Many of these are standard GCE practicals. This ensures that all students cover a variety of different practicals and have developed their experimental and investigative skills. The examination can then contain questions of a more practical nature, such as analysis and evaluation of practical work, discussion or errors, safety procedures and risk assessments.

The GCE in Chemistry criteria assessment objective 3 (A03): *How Science Works*, states that students should be able to:

- demonstrate and describe ethical, safe and skilful practical techniques and processes, selecting appropriate qualitative and quantitative methods
- make, record and communicate reliable and valid observations and measurements with appropriate precision and accuracy
- analyse, interpret, explain and evaluate the methodology, results and impact of their own and others' experimental and investigative activities in a variety of ways.

These points have been embedded within the specification and the assessments, both at AS and A2 level.

COURSE STRUCTURE

- Edexcel's GCE in Chemistry comprises six units and contains an Advanced Subsidiary subset of three AS units.
- The Advanced Subsidiary GCE is the first half of the GCE course and consists of Units 1, 2 and 3. It may be awarded as a discrete qualification or contribute 50 per cent of the total Advanced Level GCE marks.

- The full Advanced Level GCE award consists of the three AS units plus three A2 units which make up the other 50 per cent of the Advanced GCE. Students wish to take the full Advanced Level GCE must, therefore, complete all six units.

UNIT DESCRIPTIONS

UNIT 1: The Core Principles of Chemistry

Chemical ideas

This unit provides opportunities for students to develop the basic chemical skills of formulae writing, equation writing and calculating chemical quantities.

The study of energetics in chemistry is of theoretical and practical importance. In this unit students learn to define, measure and calculate enthalpy changes. They will see how a study of enthalpy changes can help chemists to understand chemical bonding.

The study of atomic structure introduces s, p, and d orbitals and how a more detail understanding of electron configurations can account for the arrangement of elements in the periodic table.

The unit introduces three types of strong chemical bonding (ionic, covalent and metallic).

Organic chemistry is also introduced, with students studying alkanes and alkenes.

ASSESSMENT

Written Paper: 1 Hour 15 minutes: 80 marks

Section A is an objective test section which will aim to cover a large proportion of the specification for this unit.

Section B contains a mixture of short-answer and extended answer questions. This will include questions on the analysis and evaluation of practical work.

Quality of written communication will be assessed in this examination in Section B.

Students will be assessed on their ability to:

- demonstrate an understanding of the terms atoms, element, ion, molecule, compound, empirical and molecular formulae
- write balanced equations (full and ionic) for simple reactions, including the use of state symbols
- demonstrate an understanding of the terms relative atomic mass, amount of substance, molar mass and parts per million (ppm) e.g. gases in the atmosphere, exhausts, water pollution
- calculate the amount of substance in a solution of known concentration (excluding titration calculations at this stage) e.g. use data from the concentrations of the various species in blood samples to perform calculations in mol dm^{-3}

- Use chemical equations to calculate reacting masses and vice versa using the concepts of amount substance and molar mass
- Use chemical equations to calculate volumes of gases and vice versa using the concepts of amount of substance and molar volume of gases, e.g. calculation of the mass or volume of CO₂ produced by combustion of a hydrocarbon (given a molar volume for the gas)
- Use chemical equations and experimental results to deduce percentage yields and atom economies in laboratory and industrial processes and understand why they are important.
- demonstrate an understanding of, and be able to perform, calculations using Avogadro constant
- analyse and evaluate by experiment, e.g. the reaction of lithium with water and deducing the equation from the amounts in moles of lithium and hydrogen
- make a salt and calculate the percentage yield of product, e.g. preparation of a double salt (ammonium iron (II) sulphate from iron, ammonia and sulphuric acid)
- carry out and interpret the results of simple test tube reactions, such as displacements, reactions of acids, precipitations, to relate the observations to the state symbols used in equations and to practise writing full and ionic equations.

The Core Principles of Chemistry

ENERGETICS

Students will be assessed on their ability to:

- demonstrate an understanding of the term enthalpy change
- construct simple enthalpy level diagram showing the enthalpy change
- recall the sign for exothermic and endothermic reactions, e.g. illustrated by the use of exo – and endothermic reactions in hot and cold packs
- recall the definition of standard enthalpy changes of reaction, formation, combustion, neutralization and atomization and use experimental data to calculate energy transferred in a reaction and hence the enthalpy change of the reaction. This will be limited to experiments where substances are mixed in an insulated container, and combustion experiments
- recall Hess's Law and apply it to calculating enthalpy changes of reaction from data provided, selected from a table of data or obtained from experiments and understand why standard data is necessary to carry out calculations of this type

- evaluate the results obtained from experiments using the expression: energy transferred in joules = mass x specific heat capacity x temperature change and comment on the sources of error and assumptions made in the experiments
- demonstrate an understanding of the terms bond enthalpy and mean bond enthalpy, and use bond enthalpies in Hess cycle calculations and recognize their limitations. Understand that bond enthalpy data gives some indication about which bond will break first in a reaction, how easy or difficult it is and therefore how rapidly a reaction will take place at room temperature.

ATOMIC STRUCTURE AND THE PERIODIC TABLE

Students will be assessed on their ability to:

- recall the definitions of relative atomic mass, relative isotopic mass and relative molecular mass and understand that they are measured relative to $1/12^{\text{th}}$ the mass of a ^{12}C atom
- demonstrate an understanding of the basic principles of a mass spectrometer and interpret data from a spectrometer to:
 - i. deduce the isotopic composition of a sample of an element
 - ii. deduce the relative atomic mass of an element
 - iii. measure the relative molecular mass of a compound
- describe some uses of some mass spectrometers, e.g. in radioactive dating, in space research, in sport to detect use of anabolic steroids, in the pharmaceutical industry to provide an identifier for compounds synthesised for possible identification of drugs
- recall and understand the definition of ionization energies of gaseous atoms and that they are endothermic processes
- describe the shapes of electron density plots (or maps) for s and p orbitals
- predict the electronic structure and configuration of atoms of the elements from hydrogen to krypton inclusive using $1s\dots$ notation and electron-in-boxes notation (recall electrons populate orbits singly before pairing up)
- demonstrate an understanding that electronic structure determines the chemical properties of an element
- recall that the periodic table is divided into blocks, such as s, p and d

UNIT 2: APPLICATION OF CORE PRINCIPLES OF CHEMISTRY

Unit Description: Chemical Ideas

This unit develops the treatment of chemical bonding by introducing intermediate types of bonding and by exploring the nature and effects of intermolecular forces.

Study of the periodic table is extended to cover the chemistry of group 2 and 7. Ideas about redox reactions are applied in particular to the reactions of halogens and their compounds.

The unit develops a largely qualitative understanding of the ways in which chemists can control the rate, direction and extent of chemical change.

Organic chemistry in this unit covers alcohols and halogenoalkanes. The treatment is extended to explore the mechanisms of selected examples.

Students have to use formulae and balance equations and have an understanding of chemical quantities.

HOW CHEMISTS WORK

Electron-pair repulsion theory shows how chemists can make generalisations and use them to make predictions.

Chemists rationalise a great deal of information about chemical changes by using theory to categorise reagents and types of chemical change. This is illustrated by the use of inorganic and organic examples in this unit.

The use of models in chemistry is illustrated by the way in which the Maxwell Boltzmann distribution and collision theory can account for the effects of temperature on the rates of chemical reactions.

The unit shows how chemists can study chemical changes on the atomic scale and propose mechanisms to account for their observations.

CHEMISTRY IN ACTION

This unit shows the contribution that chemistry can make to a more sustainable economy by redeveloping manufacturing processes to make them more efficient, less hazardous and less polluting.

Insight into the mechanisms of chemical reactions can help to account for the damaging effects of some chemicals on the natural environment.

The study of spectroscopy gives further examples of the importance of accurate and sensitive methods of analysis which can be applied to study chemical changes but also to detect drugs such as alcohol.

The unit deals with issues regarding the environment, such as climate change, the effects of greenhouse gases, carbon footprints and other aspects of green chemistry. It ensures that students understand the underlying chemistry and can investigate ways to combat these issues.

ASSESSMENT

Written Paper: 1 Hour 15 minutes: 80 marks

The paper will have three sections: A, B and C

Section A is an objective test section which will aim to cover a large proportion of the specification for this unit

Section B contains a mixture of short-answer and extended answer questions.

Section C will contain extended answer questions on contemporary contexts. This may contain stimulus materials on a scenario that students must read in order to answer the questions. It will focus on the chemistry behind the contexts and will not be a comprehensive exercise.

Quality of written communications will be assessed in this examination, in either Section B or C. Questions on the analysis and evaluation of practical work will also be included in either Section B or C.

UNIT 3: CHEMISTRY LABORATORY SKILLS

This unit contains a practical written examination that covers the content of Units 1 and 2. There is no specific content for this unit.

Students are expected to develop experimental skills, and a knowledge and understanding of practical procedures and techniques that they develop.

To prepare for the assessment of this unit, students must carry out practical activities, collect and analyse data and draw conclusions.

These practical activities should cover a range of different topic areas and require the use of a variety of practical techniques.

The practical written examination covers the areas of physical, organic and inorganic chemistry and the following types of practicals:

- qualitative observations
- quantitative measurements
- preparations

HOW CHEMISTS WORK

The GCE Chemistry subject criteria include *How Science Works*. Students are given the opportunity to develop their practical skills for *How Science Works* by completing a range of different practicals that require a variety of different techniques.

Student's laboratory reports on their practical work should use appropriate scientific, technical and mathematical language, conventions and symbols in order to meet the requirements of *How Science Works*.

ASSESSMENT INFORMATION

Written Paper: 1 hour 15 minutes: 50 marks. It will contain one section.

UNIT4: RATES, EQUILIBRIA AND FURTHER ORGANIC CHEMISTRY

Unit Description: Chemical ideas

In this unit students make a quantitative study of chemical kinetics and take further their study on organic reaction mechanisms.

The topics of entropy and equilibrium show how chemists are able to predict quantitatively the direction and extent of chemical change.

The organic chemistry in this unit covers carbonyl compounds, plus carboxylic acids and their derivatives.

Students are required to apply their knowledge gain in Units 1 and 2 to all aspects of this unit. This includes nomenclature, ideas of isomerism, bond polarity and bond enthalpy, reagents and reaction conditions, reaction types and mechanisms. Students are also expected to use formulae and balance equations and calculate chemical quantities.

HOW SCIENCE WORKS

Through practical work, students will learn about the methods use to measure reaction rates. They will collect data, analyse it and interpret the results. They then see how a knowledge of rate equations and other evidence can enable chemist to propose models to describe the mechanisms of reactions.

The study of entropy introduces students to the methods of thermodynamics and shows how chemists used formal, quantitative and abstract thinking to answer fundamental questions about the stability of chemicals and the direction of chemical change.

The unit tests the equilibrium law by showing the degree to which it can accurately predict change during acid-base reactions, notably the change to pH during titrations.

The historical development of theories explaining acids and bases shows how scientific ideas change as a result of new evidence and fresh thinking.

CHEMISTRY IN ACTION

This unit shows how the principles of kinetics and thermodynamics can help to achieve optimal conditions for the manufacture of chemicals.

The study of buffer solutions shows the varied importance of equilibrium systems in living cells, in medicines, in foods and in the natural environment.

The two broad areas of application of chemistry are synthesis and analysis. In this unit synthesis is illustrated by reactions of carbonyl compounds (notable with cyanide ions) and the production of esters for use as solvents, flavourings and perfumes. The main analytical technique features in nmr including coverage of magnetic resonance imaging.

ASSESSMENT

Written Paper: 1 Hour 40 minutes: 90 marks.

It will contain three Sections: A, B and C.

Section A is an objective test section which will aim to cover a large proportion of the specification for this unit.

Section B contains a mixture of short-answer and extended answer questions.

Section C will contain data questions and will require students to select the necessary data from the data booklet. They will be provided with data from a laboratory experiment and asked a series of questions on it. The longer timing of the examination reflects the style of the questions for Section C.

Students will be able to show their full ability in Section B and C as these will contain areas where they will be stretched and challenged.

Quality of written communication will be assessed in this examination, in either Section B or C. The data booklet can be used throughout the examination for this unit.

UNIT 5: TRANSITION METALS AND ORGANIC NITROGEN CHEMISTRY

Unit Description: Chemical Ideas

In this unit the study of electrode potentials builds on the study of redox in unit 2, including the concept of oxidation number and the use of redox half equations.

Students will study further chemistry related to redox and transition metals.

The organic chemistry section of this unit focuses on areas and the organic nitrogen compounds such as amines, amides, amino acids and proteins. Students are expected to use the knowledge and understanding of organic chemistry that they have gained over the whole GCE in chemistry when covering the organic synthesis section.

Written Paper: 1 hour 40 minutes: 90 marks.

It will contain three Sections: A, B and C.

Section A is an objective test section which will aim to cover a large proportion of the specification for this unit.

Section B contains a mixture of short-answer and extended answer questions. Questions on the analysis and evaluation of practical work will also be included in Section B.

Section C will contain extended answer questions on contemporary contexts. This may contain stimulus materials on a scenario that students must read in order to answer the questions. It will focus on the chemistry behind the contexts and will not be a comprehension exercise. The longer timing of the examination reflects the style of the question for Section C.

Students will be able to show their full ability in Section B and C as these contain areas where they will be stretched and challenged.

Quality of written communication will be assessed in this examination in either Section B or C. The data booklet can be used throughout the examination for this unit.

UNIT 6: CHEMISTRY LABORATORY SKILLS II

This unit contains a practical written examination that covers the content of Units 4 and 5. There is no specific content for this unit.

Students are expected to develop experimental skills and a knowledge and understanding of the necessary techniques, by carrying out a range of practical s while they study Units 4 and 5.

This unit will assess students' knowledge and understanding of practical procedures and techniques that they develop.

To prepare for the assessment of this unit students have to carry out practical activities, collect and analyse data and draw conclusions.

These practical activities should cover a range of different topic areas and require the use of a variety of practical techniques.

The practical written examinations covers the areas of physical, organic and inorganic chemistry and the following types of practicals:

- qualitative observations

This unit draws on all other units within the GCE in Chemistry and students are expected to use their prior knowledge when learning about these areas. Students will again encounter ideas of isomerism, bond polarity and bond enthalpy, reagents and reaction conditions, reactions types and mechanisms. Students are also expected to use formulae and balance equations and calculate chemical quantities.

HOW CHEMISTS WORK

The study of chemical cells provides an opportunity to illustrate the impact on scientific thinking when it emerges that ideas developed in different contexts can be shown to be related to a major explanatory principle. In this unit, cells emfs and equilibrium constants are shown to be related to the fundamental criterion for the feasibility of a chemical reaction: the total entropy change.

The explanatory power of the energy-level model for electronic structures is further illustrated by showing how it can help to account for the existence and properties of transition metals. In this context there are opportunities to show the limitations of the models used at this level and to indicate the need for more sophisticated explanations.

Study of the structure of benzene is another example that shows how scientific models develop in response to new evidence. This links to further investigations of the models that chemists use to describe the mechanisms of organic reactions.

The study of catalysts touches on a “frontier” area for chemical research and development which is of theoretical and practical importance. This provides an opportunity to show how the scientific community reports and validates new knowledge.

Students have further opportunities to carry out quantitative analysis, to interpret complex data and assess the outcomes in terms of the principles of valid measurement. The topic of organic synthesis illustrates a selection of the techniques that chemists have developed to carry out reactions and purify products efficiently and safely.

CHEMISTS IN ACTION

In the topic of electrochemistry students will learn about new developments in chemical cells and the potential of fuel cells.

Another important area of contemporary chemistry featured in this unit is catalysis.

The study of organic synthesis highlights the importance of both synthesis and instrumental analysis in modern chemistry.

ASSESSMENT INFORMATION

- quantitative measurements
- preparations

HOW CHEMISTS WORK

Students should be given the opportunity to develop their practical skills for How Science Works by completing a range of practicals that require a variety of different techniques.

Students' laboratory reports on their practical work should use appropriate scientific, technical and mathematical language, conventions and symbols in order to meet the requirements of *How Science Works*.

ASSESSMENT INFORMATION

Written Paper: 1 Hour 15 minutes: 50 marks

The paper will contain one section.

ENGLISH LITERATURE

AIMS

The aims of the **Edexcel Advanced Subsidiary** and **Advanced GCE in English Literature** are to develop students' interest in and enjoyment of literature and literary studies as they:

- read widely and independently set texts and others that they have selected
- engage creatively with a substantial body of texts and ways of responding to them
- develop and effectively apply their knowledge of literary analysis and evaluation in speech and writing
- explore the contexts of the texts they are reading and others' interpretations of them
- deepen their understanding of the changing traditions of literature in English.

KNOWLEDGE AND UNDERSTANDING

This Advanced Subsidiary and Advanced GCE specification requires students to:

- use their detailed knowledge and understanding of individual works of literature to explore relationships between texts and to appreciate the significance of culture and contextual influences upon readers and writers
- show knowledge and understanding of a range of literary texts and include at least two examples of each of the genres of prose, poetry and drama across the course as a whole
- experience a wide range of reading in poetry, prose and drama that must include at least one play by Shakespeare, work by at least one author writing between 1300 and 1800, at least one work first published or performed after 1990 and, at Advanced Subsidiary, work by at least one author published between 1800 and 1945
- at Advanced Subsidiary, show knowledge and understanding of: the functions and effects of structure, form and language in text; some of the ways in which individual texts are interpreted by different readers; and some of the ways in which texts relate to one another and to the contexts in which they are written and read
- at A2, show knowledge and understanding of the significance of: the ways in which writers use and adapt language, form and structure in texts; the interpretation of texts by different readers, including over time; how texts relate to literary traditions, movements and genres; and the cultural and contextual influence upon readers and writers.

SKILLS

This Advanced Subsidiary and Advanced GCE specification requires students to:

- read texts in a variety of ways and respond critically and creatively
- vary strategies for reading, including for detail, overview and gist, depending on the texts being studied and purposes for reading them
- explore comparisons and contrasts between texts, establishing links and relationships
- identify and consider how attitudes and values are expressed in texts
- draw on their understanding of different interpretations when responding to and evaluating texts
- fluently, accurately and effectively communicate their knowledge, understanding and judgement of texts
- use literary critical concepts and terminology with understanding and discrimination
- make accurate reference to quotations from texts and sources.

In addition, the Advanced GCE specification requires students to show judgement and independence as they:

- synthesise and reflect upon their knowledge and understanding of a range of literary texts and ways of reading them
- make appropriate use of the conventions of writing in literary studies, including quotations and sources.

ASSESSMENT

Unit 1: GENRE STUDIES AND CRITICAL APPRECIATION OF TEXT

Written paper: 2 hours 15 minutes: 100 marks

WHAT STUDENTS NEED TO LEARN FOR UNIT 1

- How the features of the genres of prose fiction
- How writers use language in a variety of forms
- The different ways that texts can be interpreted by different readers
- The ways texts can be grouped and compared to inform interpretation

Unit 2: EXPLORATIONS IN DRAMA

EXPLORATIVE STUDY AND CREATIVE CRITICAL RESPONSE

Internally assessed and externally moderated

In this unit students will explore drama texts by reading or watching performances (live or filmed) and by reading, viewing or listening to examples of others' responses.

The requirement that **three texts** should be studied in this unit should be interpreted to mean that in preparation for writing coursework students will study a play in detail, draw upon their knowledge of a further play(s) and/or explore relevant critical reception.

The choice of texts must include one Shakespeare play and a further play written between 1300 and 1800. The further play may be another play by Shakespeare or a play from a different playwright in the period specified. Students will produce a coursework folder that demonstrates that the four assessment objectives have been fully met.

THE COURSEWORK FOLDER

Coursework folder: 2000 – 2500 words maximum (including quotations): 80 marks

Two responses are required: an explorative study and a creative critical response. Tasks require students to produce informed, analytical responses which consider playwrights' crafting of the text(s), the ways texts can be compared and the students' own and others' critical response in a creative treatment.

References to texts, sources and quotations must be provided.

WHAT STUDENTS NEED TO LEARN

- The relevance of genre in relation to the particular texts studied and how texts are influenced by literary conventions
- How playwrights use dramatic forms to evoke responses in audiences
- The contexts in which texts have been produced and received and understanding of how these contexts influence meaning
- Key connections between drama texts studied
- A range of ways to read and experience texts
- Ways to interpret texts independently in response to interpretations by different readers
- Ways to communicate clearly and effectively their responses to the texts studied, in a range of forms
- Ways to construct critical arguments

Unit 3: COMPARING AND CONTRASTING TEXTS FROM DIFFERENT GENRES

Written paper: 2 hours 45 minutes: 100 marks

WHAT STUDENTS NEED TO LEARN FOR THIS UNIT

- The importance of the relationship between texts, making comparisons between texts in the light of different interpretations by other readers
- The significance of the cultural and contextual influences under which literary texts are written and received
- How to respond creatively, relevantly and in an informed way to texts using appropriate terminology and concepts as well as coherent and accurate written expression
- How to analyse texts from a critical perspective

Unit 4: REFLECTIONS IN LITERARY STUDIES

INDEPENDENT READING AND RESEARCH

Internally assessed and externally moderated

Coursework folder: 2500-3000 words maximum (including quotations): 80 marks

The coursework folder

Students will produce a coursework folder that demonstrates that the four assessment objectives have been fully met. Tasks must enable students to make informed analytical responses, showing critical awareness of the connections and comparisons between texts.

The coursework folder will consist of EITHER:

- One extended study referring to all three texts studied in this unit

OR

- Two shorter studies: if two studies are included, each must refer to more than one text studied in this unit

OR

- One creative response with a commentary

WHAT STUDENTS NEED TO LEARN

- How to study, with increasing independence, a wider range of texts of cultural and

literary significance

- How to carry out literary research
- How texts can be re-interpreted
- How critical responses are formed and received
- About the influences of culture and contexts on readers and writers
- How to present their findings appropriately, using referencing and sources
- How to develop creative responses to texts

MODERN FOREIGN LANGUAGES

FRENCH

Subject criteria

This specification is based on the **Advanced Subsidiary GCE and the Advanced GCE** subject criteria for modern foreign languages, which are prescribed by the regulatory authorities and are mandatory for all awarding bodies.

The Advanced Subsidiary and Advanced GCE in French have been designed in response to the subject criteria which are intended to:

- help ensure consistent and comparable standards in the same subject across the awarding bodies
- define the relationship between the Advanced Subsidiary and Advanced GCE level specifications, with the Advanced Subsidiary as a subset of the Advanced GCE level
- ensure that the rigour of the Advanced GCE is maintained
- help higher education institutions and employers know what has been studied and assessed.

AIMS

The Edexcel Advanced Subsidiary and Advanced GCE in French aims to encourage students to:

- develop an interest in, and enthusiasm for, language learning
- develop understanding of the language in a variety of contexts and genres
- communicate confidently, clearly and effectively in the language for a range of purposes
- develop awareness and understanding of the contemporary society, cultural background and heritage of countries or communities where the language is spoken
- consider their study of the language in a broader context.

The Edexcel Advanced Subsidiary and Advanced GCE in French enable students to:

- derive enjoyment and benefit from language learning
- acquire knowledge, skills and understanding for practical use, further study and/or employment

- Communicate with speakers of the language
- Take their place in a multilingual global society.

KNOWLEDGE AND UNDERSTANDING

The Advanced Subsidiary specification requires students to:

- listen and respond to a variety of spoken French-language sources
- read and respond to a variety of French-language written texts, including authentic sources, covering different contexts, registers, styles and genres
- adapt their spoken and written French language appropriately for different situations and purposes
- use the French language accurately to express facts and ideas, and to present explanations, opinions and information in both speech and writing
- understand and apply the grammatical system and a range of structures of the French language
- transfer meaning from French into English and/or vice versa.

In addition, the Advanced GCE specification requires students to:

- use the French language in speech and in writing to present viewpoints, develop arguments, analyse and evaluate
- understand and apply the grammatical system and a range of structures in French
- study aspects of the contemporary society, cultural background and heritage of one or more of the French-language countries or communities
- transfer meaning from English into French and/or vice versa. If one skill is not assessed at Advanced Subsidiary level it must be assessed at A2 level.

SKILLS

The knowledge and understanding requirements of this Advanced Subsidiary and Advanced GCE specification are inextricably linked to the four language skills of speaking, listening, reading and writing in French, in line with the subject criteria.

UNIT 1: SPOKEN EXPRESSION AND RESPONSE IN FRENCH

Unit description

This unit rewards students for their ability to converse in French on a general topic area that they have chosen in advance. Students will need to demonstrate that they can engage in a discussion in French that relates to a chosen general topic area and allied subtopics. The first part of the assessment⁵ will focus on an Edexcel-provided stimulus that links to the chosen general topic area but the conversation will then move away from the stimulus to consider other aspects of the chosen topic area.

Students will be expected to give relevant and appropriate information, convey opinions, interact and respond to a range of questions. They must choose one of the following general topic areas:

- Youth culture and concerns
- Lifestyle: health and fitness
- The world around us: travel, tourism, environmental issues and the French-speaking world
- Education and employment.

ASSESSMENT

The assessment for this unit has two sections that total 50 marks.

SECTION A

This requires students to respond to four Edexcel-set questions on a stimulus related to the student's chosen general topic area. The examiner will first ask two questions about the general content of the stimulus and will follow these with two other questions that invite students to express their opinions on, or give reactions to, the stimulus.

SECTION B

The second part requires the examiner to engage the student in a discussion that, although still relating to the same general topic area and its linked subtopics, moves away from the main focus of the stimulus.

The test time should be divided equally, where appropriate, between Section A and B. Progression from Sections A to B should occur without any break in recording

The full assessment of all students must be recorded on either cassettes or CDs.

All students for this unit will be assessed by Edexcel.

WHAT STUDENTS NEED TO LEARN

Students need to develop language skills that enable them to communicate effectively and confidently on different issues and concerns. They need to give facts, opinions and respond appropriately to unrehearsed and unpredictable questions and statements. They should be used to giving considered and informed responses to open questions.

Students will be assessed on their ability to use language interactively and on the accuracy,

range and suitability of the language used.

UNIT 2: UNDERSTANDING AND WRITTEN RESPONSE IN FRENCH

Unit description

This unit requires students to understand and convey their understanding of French-language texts and recordings. In addition, students will need to produce an essay to demonstrate an ability to manipulate the French language in continuous writing. Students will be expected to recognise and use the French language in a variety of contexts and in relation to a prescribed range of general topic areas.

The unit draws upon four general topic areas:

- Youth culture and concerns
- Lifestyle: health and fitness
- The world around us: travel, tourism, environmental issues and the French-speaking world
- Education and employment.

ASSESSMENT INFORMATION

Format

SECTION A: (20 marks)

Students will be required to listen to a range of authentic recorded French-language material and to retrieve and convey information given in the recording by responding to a range of French-language questions. Students will need to show understanding of both the general sense and specific details conveyed. The questions will elicit non-verbal responses and short answers in French.

Students will have individual control of the recording and may stop, revisit and replay sections of the recording as required within the time allocated for this section (45 minutes maximum). They must make notes and answer questions within the first 45 minutes of this unit assessment and can move on to another section as soon as they are ready.

SECTION B: (20 marks)

Students will be required to read authentic French-language printed materials and to retrieve and convey information by responding to a range of mainly French-language answers and English answers that require a transfer of meaning from French.

Questions are linked to a range of reading comprehension exercises including some that require responses in English to test the student's ability to transfer meaning from French into English.

SECTION C: (30 marks)

Students will be required to write 200-220 words in the form of a letter, report or article in French based on a short printed French-language stimulus. Students must respond to four-six linked bullet points and demonstrate their ability to communicate accurately in French using correct grammar and syntax.

Students will have individual control over the pace of this examination, including the listening element. However, for practical reasons, they must start the listening section first and must complete this within the first 45 minutes.

A CD recording will be provided for each student with the examination paper. Student access to equipment that permits individual listening is required.

All students for this unit will be assessed by EDEXCEL.

WHAT STUDENTS NEED TO LEARN

Students need to develop language skills that enable them to communicate effectively, accurately and confidently in French-language writing, to transfer meaning from French into English, and to understand spoken and written French.

Students will be expected to demonstrate knowledge and understanding of grammar and structures in French.

UNIT 3; UNDERSTANDING AND SPOKEN RESPONSE IN FRENCH

Unit description

This unit requires students to demonstrate the effectiveness of the French-language skills by presenting and taking a clear stance on any issue of their choice. They will be expected to interact effectively with the teacher/examiner, defend their views and sustain discussion as the teacher/examiner moves the conversation away from their chosen issue.

They will be expected to use the language of debate and argument to discuss the issues and will also be assessed for understanding as well as communication and quality of spoken language.

ASSESSMENT INFORMATION

This section attracts a maximum of 50 marks

FORMAT

Students will first need to outline their chosen issue for about one minute, adopting a definite stance towards the issue. They should then defend and justify their opinions for up to four minutes. The teacher/examiner will then initiate a spontaneous discussion in which a minimum of two further unpredictable areas of discussion will be covered. These issues may or may not relate to the chosen issue but will not require specialised factual knowledge or relate to French-language culture. This unit therefore assesses advanced-level understanding as well as speaking skills.

All orals have to be recorded and sent to EDEXCEL to be assessed.

UNIT 4: RESEARCH, UNDERSTANDING AND WRITTEN RESPONSE IN FRENCH

Unit description

This unit requires the students to demonstrate skills in advanced-level French writing (discursive or creative essay) and translation from English into French. The unit also requires students to demonstrate evidence of independent, advanced-level French-language reading and research of a chosen text, play, film or topic area that links to the culture and/or society of a French-speaking country, countries or community. The content of this unit will be linked to the following general topic areas:

- Youth culture and concerns
- Lifestyle: health and fitness
- The world around us: travel, tourism, environmental issues and the French-speaking world
- Education and employment
- Customs, traditions, beliefs and religions
- National and international events: past, present and future
- Literature and the arts.

ASSESSMENT INFORMATION

Format

The paper set for this unit has three sections.

SECTION A: (10 marks)

This will consist of a short written translation exercise to test students' ability to transfer meaning from English into French effectively. The English language stimulus will be about 80 words long.

SECTION B: (45 marks)

This section will consist of a French-language essay in response to one from a choice of seven questions that invite either discursive or creative writing.

The discursive essay requires students to write 240-270 words in French to reveal their ability to organise arguments and ideas and give a structured consideration of a general issue. The creative essay requires a different type of response (also of 240-270 words) based on an imaginative French-language text or a combination of text and visual(s). Both discursive and creative questions will link to the prescribed seven topic areas.

SECTION C (45 marks)

A research-based essay in French (240-270 words) rewards students for French-language research skills linked to an area of interest to the student. **This must relate to the culture**

and/or society of a French-language country, countries or community. Students will need to draw on their knowledge and understanding of this. They will have freedom to determine the content of their research (potentially in negotiation with their teacher) but it must relate to one of the following areas of research:

- Geographical area
- Historical study
- Aspects of modern society
- Literature and the arts (eg text, play or film)

A question will be set for each of these four areas of research.

**All students for this unit will be assessed by EDEXCEL.
Students are not permitted to take any books, dictionaries or texts into the examination room.**

HISTORY

AIMS

The aims of the Edexcel Advanced Subsidiary and Advanced GCE in History are to encourage students to:

- develop their interest in and enthusiasm for history and an understanding of its intrinsic value and significance
- acquire an understanding of different identities within society and an appreciation of social, cultural, religious and ethnic diversity through the study of aspects of history
- build on their understanding of the past through experiencing a broad and balanced course of study
- improve as effective and independent learners and as critical and reflective thinkers with curious and enquiring minds
- develop the ability to ask relevant and significant questions about the past and research them
- acquire an understanding of the nature of historical study, for example that history is concerned with judgements based on available evidence and that historical judgements may be provisional
- develop their use and understanding of historical terms, concepts and skills
- make links and draw comparisons within and/or across different periods and aspects of the past
- organise and communicate their historical knowledge and understanding in different ways, arguing a case and reaching substantiated judgements.

BREADTH AND DEPTH OF CONTENT

This specification provides a broad, coherent, satisfying and worthwhile course of study for all students whether they progress to further study in the subject or not.

The specification requires students to study:

- the history of more than one country or state or the history of more than one period

- aspects of the past in breadth (through periods or themes) and in depth
- significant individuals, societies, events, developments and issues within a broad historical context
- developments affecting different groups within the societies studied
- a range of appropriate historical perspectives, for example: aesthetic; cultural; economic; ethnic; political; religious; scientific; social or technological.

In addition, The Edexcel Advanced GCE specification requires students to study:

- a substantial and coherent element of history
- change and/or development over a period of time sufficient to demonstrate understanding of the process of change, both long term (at least 100 years) and short term.

KNOWLEDGE AND UNDERSTANDING

This specification requires students to:

- demonstrate knowledge and understanding of the historical themes, topics, periods and debates
- demonstrate their breadth of historical knowledge and understanding by making links and drawing comparisons between different aspects of the period, society, topic and theme studied
- demonstrate their understanding of key historical terms and concepts
- analyse and evaluate the causes and consequences of historical events and situations, and changes and developments in the periods and themes studied
- assess the significance of individuals, societies, events, developments and/or ideas in history
- develop an understanding of the nature and purpose of history as a discipline and how historians work.

HISTORICAL INTERPRETATION

This specification requires students to:

- comprehend, analyse and evaluate how the past has been interpreted and represented in

different ways, for example in historians' debates and through a range of media such as paintings, films, reconstructions, museum displays, the internet.

HISTORICAL ENQUIRY

This specification requires students to:

- investigate specific historical questions, problems or issues
- use historical sources critically in their context, deploying appropriate information and reaching substantiated conclusions.

ORGANISATION AND COMMUNICATION

This specification requires students to:

- organise and communicate their historical knowledge and understanding in different ways, arguing a clear, logical and precise case and reaching substantiated judgements.

ASSESSMENT

Unit 1: HISTORICAL THEMES IN BREADTH

A World Divided: Communism and Democracy in the 20th Century

D3: Russia in revolution, 1881 – 1924: From Autocracy to Dictatorship.

The focus of this topic is on the breakdown of Tsarist rule under the impact of social and economic change and the First World War and the development of dictatorship. Students will study the last years of the Russian Tsars, the Russian Revolution and the creation of a police state under the Communists.

Written paper: 1 hour 20 minutes: 60 marks

Unit 2: DEPTH STUDY

Henry VIII: Authority, Nation and Religion, 1509-1540

The main focus of this unit is the attempt by Henry VIII to strengthen the power and status of the Tudor monarchy, both at home and abroad. Students will study the nature of his government and the work of Cardinal Wolsey who helped Henry increase his power as monarch. Students will also investigate the impact of these changes on England, for example, the resistance to the dissolution of the monasteries. Henry's ambitions as a soldier and his attempts to increase his power in Europe will also be studied.

Written paper: 1 hour 20 minutes: 60 marks

Unit 3: DEPTH STUDY AND ASSOCIATED HISTORICAL CONTROVERSIES

Written paper: 2 hours: 70 marks

Unit 4: HISTORICAL ENQUIRY

Internal assessment

Part A: An extended essay which addresses the question which was posed as the focus of the enquiry. The enquiry must provide evidence of students' ability to:

- assess the significance of the chosen individual or event in the short term
- interpret, evaluate and use sources in their historical context.

Part B: An extended essay which addresses the question which was posed as the focus of the enquiry. The enquiry must provide evidence of students' ability to:

- identify relevant issues and make use of relevant reading and other data as appropriate
- assess the significance of the chosen factor or event in the long term (at least 100 years) by linking the chosen factor, individual or event with other events and forces for change in the period.

Students are encouraged to make use of ICT in the production of the essay.

MATHEMATICS

The units in this specification have been designed to produce courses which will encourage students to:

- develop their understanding of mathematics and the mathematical processes in a way that promotes confidence and fosters enjoyment
- develop abilities to reason logically and recognise incorrect reasoning, to generalise and to construct mathematical proofs
- extend their range of mathematical skills and techniques and use them in more difficult, unstructured problems
- develop an understanding of coherence and progression in mathematics and of how different areas of mathematics can be connected
- recognise how a situation may be represented mathematically and understand the relationship between ‘real-world’ problems and standard and other mathematical models and how these can be refined and improved
- use mathematics as an effective means of communication
- read and comprehend mathematical arguments and articles concerning applications of mathematics
- acquire the skills needed to use technology such as calculators and computers effectively, recognise when such use may be inappropriate and be aware of limitations
- develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general
- take increasing responsibility for their own learning and the evaluation of their own mathematical development.

Unit 1: CORE MATHEMATICS 1

Unit description

Algebra and functions; coordinate geometry in the (x, y) plane; sequences and series; differentiation; integration.

ASSESSMENT

Written paper: 1 hour 30 minutes: 75 marks

The examination will contain about ten questions of varying length. The mark allocations per question will be stated on the paper. All questions should be attempted. For this unit, students may not have access to any calculating aids, including log tables and slide rules.

ALGEBRA AND FUNCTIONS

What students need to learn

- Laws of indices for all rational exponents.
- Use and manipulation of surds.
- Quadratic functions and their graphs.
- The discriminant of a quadratic function.
- Completing the square. Solution of quadratic equations.
- Simultaneous equations: analytical solution by substitution.
- Solution of linear and quadratic inequalities.
- Algebraic manipulation of polynomials, including expanding brackets and collecting like terms, factorisation.
- Graphs and functions; sketching curves defined by simple equations. Geometrical interpretation of algebraic solution of equations. Use of intersection points of graphs of functions to solve equations.

Unit C2

Unit description

Algebra and functions; coordinate geometry in the (x, y) plane; sequences and series; trigonometry; exponentials and logarithms; differentiation; integration.

ASSESSMENT

Written paper: 1 hour 30 minutes: 75 marks

The examination will contain about nine questions of varying length. The mark allocations per question will be stated on the paper. All questions should be attempted. Calculators are allowed.

What students need to learn:

- Simple algebraic division; use of the Factor Theorem and the Remainder Theorem.
- Students should be able to find the radius and the coordinates of the centre of the circle given the equation of the circle, and vice versa. The sum of a finite geometric series; the sum to infinity of a convergent geometric series.
- The sine and cosine rules, and the area of a triangle in the form $\frac{1}{2} ab \sin C$.
- Radian measure, including use for arc length and area of sector.
- Sine, cosine and tangent functions. Their graphs, symmetries and periodicity.
- Solution of simple trigonometric equations in a given interval.
- Laws of logarithms.
- Applications of differentiation to maxima and minima and stationary points, increasing and decreasing functions.
- Evaluation of definite integrals.
- Interpretation of the definite integral as the area under a curve.
- Approximation of area under a curve using the trapezium rule.

Unit C3

Unit Description

- Algebra and functions; trigonometry; exponentials and logarithms; differentiation; numerical methods.

ASSESSMENT

Written paper: 1 hour 30 minutes: 75 marks

This paper will contain about seven questions of varying length. The mark allocations per question will be stated on the paper. All questions should be attempted.

WHAT STUDENTS NEED TO LEARN:

- Simplification of rational expressions including factorising and cancelling, and algebraic division.
- Definition of a function. Domain and range of functions. Composition of functions.

Inverse functions and their graphs.

- The modulus function.
- Knowledge of secant, cosecant and cotangent and of arcsin, arccos and arctan. Their relationships to sine, cosine and tangent. Understanding of their graphs and appropriate restricted domains.
- The function of e^x and its graph.
- The function $\ln x$ and its graph; $\ln x$ as the inverse function of e^x .

Unit C4

Unit description

- Algebra and functions; coordinate geometry in the (x, y) plane; sequences and series; differentiation; integration; vectors.

ASSESSMENT

Written paper: 1 hour 30 minutes: 75 marks

This paper will contain about seven questions of varying length. The mark allocations per question will be stated on the paper. All questions should be attempted.

WHAT STUDENTS NEED TO LEARN

- Rational functions. Partial fractions (denominators not more complicated than repeated linear terms).
- Parametric equations of curves and conversion between Cartesian and parametric forms.
- Binomial series for any rational n .
- Differentiation of simple functions defined implicitly or parametrically.
- Exponential growth and decay.
- Formation of simple differential equations.
- Evaluation of volume of revolution.
- Simple cases of integration by substitution and integration by parts. These methods as the reverse processes of the chain and product rules respectively.

- Simple cases of integration using partial fractions.
- Analytical solution of simple first order differential equations with separable variables.
- Numerical integration of functions.
- Vectors in two and three dimensions.
- Magnitude of a vector.
- Algebraic operations of vector addition and multiplication by scalars, and their geometrical interpretations.
- Position vectors.
- The distance between two points.
- Vector equations of lines.
- The scalar product. Its use for calculating the angle between two lines.

C1, C2, C3 and C4 form the subject core and the knowledge, understanding and skills required for all Mathematics specifications are contained in the subject core. An Advanced Subsidiary in Mathematics is made up of three units as follows: C1, C2 and one other unit from M1, M2, S1, S2, D1 or D2. An Advanced GCE examination consists of: C1, C2, C3, C4 plus two Applications units from the following six combinations: S1 and S2; M1 and M²; D1 and D2; M1 and S1; S1 and D1; M1 and D1.

- All examination papers last 1 hour 30 minutes.
- All examination papers have 75 marks.
- C1 is a non-calculator paper: for all other unit examinations, calculators can be used.

PHYSICS

AIMS

The aims of the EDEXCEL Advanced Subsidiary and Advanced GCE in Physics are to:

- provide seamless progression from the IGCSE programme of study and enable students to sustain and develop an enjoyment of, and interest in, physics and its applications
- develop an understanding of the link between theory and experiment and foster the development of skills in the design and execution of experiments
- develop essential knowledge and understanding in physics and, where appropriate, the applications of physics with an appreciation of their significance and the skills needed for the use of these in new and changing situations
- demonstrate the importance of physics as a human endeavour that interacts with social, philosophical, economic and industrial matters
- be a suitable preparation for higher education courses in physics and related courses.

KNOWLEDGE AND UNDERSTANDING

This Advanced Subsidiary and Advanced GCE specification requires students to:

- recognise, recall and show understanding of scientific knowledge
- select, organise and communicate relevant information in a variety of forms
- analyse and evaluate scientific knowledge and processes
- apply scientific knowledge and processes to unfamiliar situations
- assess the validity, reliability and credibility of scientific information.

SKILLS

This Advanced Subsidiary and Advanced GCE specification requires students to:

- demonstrate and describe ethical, safe and skilful practical techniques and processes, selecting appropriate qualitative and quantitative methods
- make, record and communicate reliable and valid observations and measurements with appropriate precision and accuracy

- analyse, interpret, explain and evaluate the methodology, results and impact of their own and others' experimental and investigative activities in a variety of ways.

UNIT 1: PHYSICS ON THE GO: EXTERNALLY ASSESSED

Content summary

This unit involves the study of mechanics (rectilinear motion, forces, energy and power) and materials (flow of liquids, viscosity, Stokes' Law, properties of materials, Young's modulus and elastic strain energy).

Part of this topic may be taught using applications that relate to, for example, sports. The other part of this topic may be taught using, for example, a case study of the production of sweets and biscuits. It may also be taught using the physics associated with spare part surgery for joint replacements and lens implants.

ASSESSMENT

Written paper: 1 hour 20 minutes: 80 marks

This paper will consist of objective questions, short questions and long questions.

UNIT 2: PHYSICS AT WORK: EXTENALLY ASSESSED

Content summary

This unit involves the study of waves (including refraction, polarisation, diffraction and standing (stationary) waves), electricity (current and resistance, Ohm's law and nonohmic materials, potential dividers, emf and internal resistance of cells, and negative temperature coefficient thermistors) and the wave/particle nature of light.

Several different contexts may be used to teach parts of this unit including music, medical physics, technology in space, solar cells and an historical study of the nature of light.

ASSESSMENT

Written paper: 1 hour 20 minutes: 80 marks

This paper will consist of objective questions, short questions and long questions.

UNIT 3: EXPLORING PHYSICS: EXTERNALLY ASSESSED

Written paper: 1 hour 30 minutes: 40 marks

Content summary

Students are expected to develop experimental skills, and a knowledge and understanding of experimental techniques, by carrying out a range of practical experiments and investigations

while they study Units 1 and 2.

This unit will assess students' knowledge and understanding of experimental procedures and techniques that were developed when they did the experiments.

UNIT 4: PHYSICS ON THE MOVE: EXTERNALLY ASSESSED

Content summary

This unit involves the study of further mechanics (momentum and circular motion), electric and magnetic fields, and particle physics.

Several different contexts may be used to teach parts of this unit including a modern rail transport system, communications and display techniques.

Particle physics is the subject of current research, involving the acceleration and detection of high-energy particles. This area of the specification may be taught by exploring a range of contemporary experiments.

ASSESSMENT

Written paper: 1 hour 35 minutes: 80 marks

This paper will consist of objective questions, short questions and long questions.

Content summary

This unit involves the study of thermal energy, nuclear decay, oscillations, astrophysics and cosmology.

Several different contexts may be used to teach parts of this unit including space technology, medical physics and the construction of buildings in earthquake zones. The astrophysics and cosmology section of the specification may be taught using the physical interpretation of astronomical observations, the formation and evolution of stars, and the history and future of the universe.

ASSESSMENT

Written paper: 1 hour 35 minutes: 80 marks

This paper will consist of objective questions, short questions and long questions.

UNIT 6: EXPERIMENTAL PHYSICS: EXTERNALLY ASSESSED

Students are expected to develop a wide knowledge and understanding of experimental procedures and techniques throughout the whole of their Advanced Level course.

This unit will assess students' knowledge and understanding of experimental procedures and techniques.

ASSESSMENT

Written paper: 1 hour 30 minutes: 40 marks

