

GCE



**Chief Examiner's and
Principal Moderator's Report
Nutrition and Food
Science**

Summer Series 2023



Foreword

This booklet outlines the performance of candidates in all aspects of this specification for the Summer 2023 series.

CCEA hopes that the Chief Examiner's and/or Principal Moderator's report(s) will be viewed as a helpful and constructive medium to further support teachers and the learning process.

This booklet forms part of the suite of support materials for the specification. Further materials are available from the specification's microsite on our website at www.ccea.org.uk.

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GCE NUTRITION AND FOOD SCIENCE

Chief Examiner's Report

Overview

In June 2022, the Education Minister set out the adaptations to assessment arrangements for CCEA qualifications in 2022/23. This included confirmation of the provision of Advance Information for timetabled examinations in Summer 2023. The aim of Advance Information was to help mitigate the disruption to teaching and learning experienced by students intending to sit examinations in Summer 2023 series. Teachers and candidates have been understandably apprehensive regarding this series of examinations, however, most have made good use of this assessment arrangement.

Teachers were advised to ensure the full content of the specification was covered. This was essential to guarantee students were sufficiently prepared to respond to all questions in the examination, for example, low tariff questions, or, in the case of synoptic questions, frame a response that draws on knowledge, skills and understanding from across the specification. There were relatively few questions that were not attempted, suggesting that candidates had covered all the relevant sections of the specification. It was evident that teachers had prepared their candidates well for this examination series, and in addition good use was made of the Advanced Information allowing many candidates to achieve competent to highly competent responses.

Each of the examinations at both AS and A2 level enabled the highly competent candidates to display the extent of their knowledge, understanding and skills with some demonstrating in depth and current thinking. On the other hand, the examination papers also afforded the less well-prepared candidates to gain some credit in the majority of questions. As in previous years some candidates performed better in some questions than in others. To assist teachers in preparing future students, this report makes reference to those areas that were well answered, in addition to highlighting the question types and areas of the specification that frequently caused difficulty. Many examiners commented on the quality of written communication.

In AS and A2 level Nutrition and Food Science, candidates must demonstrate their Quality of Written Communication. They need to:

- ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear;
- select and use a form and style of writing appropriate to the purpose and the complexity of the subject matter; and
- organise information clearly and coherently, using specialist vocabulary where appropriate.

Quality of Written Communication is assessed in responses that require extended writing and is considered carefully by examiners when selecting the most appropriate mark band to award candidates.

At A2 it was concerning to observe that it is still the case that some candidates appear to be unaware that they are required to answer both Parts, 1 (a) and (b), of the one question in Section A. By answering only one part of Question 1 they are losing valuable marks. It would be good practice to allow candidates to see a hard copy of an examination paper, so they are familiar with the layout of the paper and what is expected of them. AS candidates should be aware that any writing outside the boxed area cannot be scanned and consequently viewed by the examiner.

Assessment Unit AS 1 Principles of Nutrition

Overview

It was very pleasing to observe that overall, the knowledge and understanding for the AS1 unit was competent. The Quality of Written Communication varied throughout, for some candidates, it was very good whilst for others it was basic for an AS qualification. The more able candidates were able to use a range of subject specific terminology. At times candidates did not always follow the command word in the question or focus their response on the context of the question and as a result candidates were unable to access the top mark band.

For future examinations, it is important for candidates to take care with their handwriting, at times some scripts were very difficult to read. When answering questions, candidates should use the space provided as a guide to the length of answer required. Making full use of support material on the Nutrition and Food Science section of the CCEA website should help.

Section A

- Q1** (a) This was generally very well answered by most candidates. Due to conflicting information available from reputable sources both 10% and 11% were acceptable responses.
- (b) This question generated a very mixed range of responses. Most candidates were able to identify the carbon chain, but a limited number referred to the hydrocarbon chain.
- (c) Overall, the responses to this question were very good, with most candidates performing well. Candidates were able to clearly identify the impact of trans fatty acids on both LDL and HDL cholesterol.
- (d) This question posed no issues. There were some excellent responses with a good ability to explain the functions of fat, candidates were able to use the command word of explain very well. Those placed in the basic mark band only discussed the function of fat in relation to the adipose tissue.
- Q2** Responses to this question were very pleasing. Most candidates performed well in this question with a good understanding of the difference between positive and negative nitrogen balance. Those candidates who had highly competent responses made good use of subject terminology such as tissue synthesis and catabolism.
- Q3** (a) This question was answered well with many candidates achieving full marks. A small number of candidates considered honey and orange juice not to contain free sugar.
- (b) Overall responses to this question were disappointing. Many candidates focused on the role of fibre in the diet in relation to constipation or satiety, linking it to weight management. Consideration was not given to the context of the question which was for children under the age of two years. Candidates who performed well were able to explain fibre in relation to filling the child up before they have consumed the calories and nutrients required.
- Q4** (a) This question was well answered by a number of candidates who made good use of subject terminology such as peak bone mass, osteoporosis, and oestrogen. Candidates needed to consider the four different age groups to achieve the top mark band. Some candidates did not discuss every age group and made general statements rather than focus on each specific age group.

- (b)** Responses to this question were generally disappointing. A large proportion of candidates made limited reference to bioavailability or the presence of oxalates and how this is linked to calcium. Several candidates also got confused between phytates and oxalates.
- Q5 (a)** Overall candidates were able to identify the symptoms of a deficiency of folate. However, there was a tendency to list these rather than describe them, therefore, missing the command word.
- (b)** This question generated a very mixed range of responses. Many candidates were able to identify the functions of potassium. However, there was a tendency to list more than two functions rather than a more focused outline meaning responses were basic. Some candidates' knowledge and understanding of the functions of potassium in the body were excellent.
- Q6 (a)** This question was not very well answered. Candidates struggled to identify the benefits of low fat milk during lactation. Some candidates did not understand the term lactation and responses focused on pregnancy. In relation to the fact the milk is low fat, very few candidates identified postpartum weight gain and did not indicate the lower energy content compared to whole milk. Responses identified general nutrients present in milk for example protein or vitamin D rather than focusing specifically on the context of the question, this resulted in many of the responses being basic.
- (b)** Overall candidates had very good knowledge of the functions of water in the diet.
- Q7 (a)** This question posed no issues. There were some excellent responses with a good ability to summarise the main roles of Vitamin C. Those placed in the basic mark band were able to identify a role but the skill to summarise that role was limited.
- (b)** This question generated a very mixed range of responses. Some candidates were able to identify functions of lycopene and selenium in relation to adult men with relevant sources. Candidates who did not perform as well had basic descriptions regarding the importance identified e.g. cancer rather than being linked to adult men e.g. prostate cancer. Knowledge and understanding of food choices were pleasing.

Section B

- Q8** Unfortunately very few candidates achieved the top mark band. There was confusion between novel sources of protein and plant-based protein, for example, some candidates discussed Quorn. Candidates also tended to compare plant-based protein with meat as a source of protein, which was not required. In addition to this, there was limited consideration of the command word 'evaluate'. Responses tended to focus on nutrition and versatility in a positive manner. Candidates' knowledge and understanding of nutrition was better than that of versatility.
- Q9** This was a popular question with very mixed responses. A small number of candidates did not focus their response on fruit and vegetables, instead listing all the nutrients and their functions that a school child needs, whilst other candidates did not show specific application to the school-age child. Those candidates who achieved the top mark band were able to identify relevant nutrients provided in fruit and vegetables and relate those nutrients to why a school child would require them.

Q10 This was a popular question which again had very mixed responses. Highly competent candidates linked each nutrient very well to the frail elderly and had an excellent ability to use subject specific terminology. Some candidates did not focus their response on the frail elderly; instead, they listed all the nutrients they could think of, along with the functions of the nutrient rather than focusing on the specific nutritional requirements of the frail elderly. Some candidates did not discuss energy as well as nutritional needs which was required.

Assessment Unit AS 2 Diet, Lifestyle and Health

Overview

Many candidates were able to display specific knowledge and understanding and include relevant terminology in both sections of this unit. However, it was concerning that some candidates lacked the terminology required at AS level. Candidates who achieved top mark bands displayed very good knowledge and understanding of the topics assessed and competently addressed the command words.

Candidates should attempt to answer questions in Section A in the lines provided. If additional space is required candidates should be advised to clearly number their response and indicate that additional information is included. Due to the nature of online marking candidates should be discouraged from writing in the blank spaces underneath each question.

Some candidates are still including an introduction and conclusion in their responses for Section B which is not required. Candidates are also advised to read the questions carefully to ensure their response addresses the correct life stage and diet or lifestyle factors. The handwriting of many candidates gave cause for concern.

Section A

- Q1**
- (a)** This was generally well answered with most candidate stating the correct number of kilocalories in 1g of alcohol.
 - (b)** A significant number of candidates were unable to access the highly competent mark band as they did not include specific information for the question or lacked an in-depth understanding of the topic. Candidates are advised to refer to the relevant factfile on the CCEA website.
 - (c)** This question was generally well answered with candidates having knowledge and understanding of the topic and were able to successfully consider the harm alcohol causes to the baby during pregnancy. Basic responses focused only on fetal alcohol syndrome or did not address harm at different stages of the pregnancy.
- Q2**
- (a)** Overall, this question was answered well. The most common error was candidates listing health problems not associated with obesity in childhood, but problems that may occur in adulthood. Candidates should learn specific knowledge for the listed life stages.
 - (b)** This question was handled well by most candidates. Those who achieved marks in the highly competent mark band were able to succinctly select the appropriate information and apply this directly to the command word in the question.
- Q3**
- (a)** Responses for this question varied. Some candidates were able to link their response to healthy food choices and include examples, whereas others placed in the lower mark bands tended to describe advertising very generally. Candidates should be advised when asked to describe two ways, only two should be described.

(b) Many candidates referred to various employment patterns in a competent/highly competent manner and were able to explain their knowledge in relation to contributing to poor eating habits. However, some responses were quite general and did not include specific knowledge and understanding of current employment patterns.

Q4 This question proved challenging for some but was generally well answered. Some candidates did not include blood glucose levels or glycaemic index, which are vital terms in the management of Type 2 diabetes. Some candidates discussed the benefits of fruit generally and did not mention Type 2 diabetes. This is a further example of where candidates are required to apply their knowledge and understanding in higher mark questions to meet Assessment Objective 3.

Section B

Q5 This was the most popular question in Section B. Candidates who scored highly displayed very good knowledge and understanding of the benefits of physical activity and were able to explore these specifically for adults. They also included relevant terminology expected for AS level.

Q6 This question was generally well answered by those who chose it. However, for some candidates valuable time was lost as dietary advice was proposed rather than focusing solely on lifestyle advice. Careful reading of the question in Section B is essential. Insightful candidates kept the focus on adult women and justified practical advice whilst also referring to cancer types.

Q7 This was a popular question, but responses varied. Some candidates struggled with the in-depth knowledge and understanding required for AS level or misinterpreted the question and focused on energy requirements. A number of candidates wrote lengthy responses discussing more than three factors. Candidates are advised to select the most relevant factors for the topic, using reputable sources for information. Those who selected physical activity, gender and life stages tended to attain marks in the higher bands.

Q8 Most candidates had a good knowledge and understanding of smoking and low intake of soluble fibre but low antioxidant status was less well explained. Some candidates had excellent written communication and included exceptional terminology, attaining marks in the top band. Candidates should be advised that this style of question is marked holistically, as outlined in the mark bands in the mark scheme, and therefore the three factors do not necessarily require equal explanation.

Assessment Unit A2 1 Food Security and Sustainability (Option A)

Overview

In general, most candidates were able to make a good attempt to answer all questions on the examination paper. There was evidence of a minority of candidates not reading some of the questions properly and therefore losing marks by writing about something other than what the question required. This was most apparent in Questions 1 (a) and 3.

Whilst there were some highly competent responses in Section B, some candidates were disadvantaged by the Quality of their Written Communication (QWC), producing answers that were poorly organised and demonstrated only adequate or basic Quality of Written Communication. Candidates hoping to access Mark Bands 3 or 4 need to produce well-written, coherent answers that use specialist vocabulary extensively and accurately.

It must be noted that there is still confusion for some candidates in answering Section A, with some candidates answering either Questions 1 (a) or (b).

Section A

- Q1 (a)** This question was poorly executed with a lack of understanding and candidates quite often did not focus on the fact that they should be commenting on why environmental claims made by the food industry are not helpful to consumer. It was apparent that some candidates did not understand the question which was disappointing considering this was a specific area on the Advance Information. It was also evident that some candidates focused on a previous mark scheme, which was not specific to this question.
- (b)** All candidates were able to comment on the positive impact organic farming may have on climate change and natural resources. The question was generally answered well with most answers being either adequate or competent. There was a lack of specialist vocabulary used and QWC was often adequate with a lack of structure evident.

Section B

- Q2** This was a popular choice. Responses were generally structured appropriately, with candidates focused on the two main areas of the question – environmental and ethical. Environmental was the main focus of most answers, which was expected. This area was, in general, well answered and candidates were able to explore a range of issues. The focus for this question should have been food waste, and marks were not allocated for a discussion on packaging. Additionally, there was a lack of specialist terminology used by some candidates which could have ensured a higher mark band, if included. It was encouraging that some candidates were able to answer this question with knowledge gained from other areas of the specification.
- Q3** This was a popular question but on the whole not well answered. Candidates often focused solely on supermarkets rather than local independent businesses. There was a lack of ability to compare and contrast. Candidates appeared to focus on a previous mark scheme and explain the disadvantages of a supermarket. The more competent answers did include a range of specialist vocabulary and were also able to focus on the fact that the question was specifically about ‘local independent businesses’ and not organic or farmer’s markets etc.

- Q4** This was a popular choice and answered well in relation to poverty. Some responses lacked depth of knowledge of war and conflict, with limited depth of knowledge and understanding shown. There was a focus on examples of war and conflict, with statistics stated but not a deeper understanding and ability to discuss the reasons for global food poverty in relation to war and conflict. Some candidates did not discuss local/UK poverty, which could have been included in their answer.
- Q5** This was the least popular question in Section B. Although the candidates who chose it generally had an adequate to competent knowledge and understanding of the negative impact of climate change on food production and security. There was a lack of structure for some candidates and QWC could have been improved with the use of a range of specialist vocabulary with a deeper understanding of the main issues.

Assessment Unit A2 1 Food Safety and Quality (Option B)

Overview

The overall standard in this option was better than in previous years. It was most encouraging to observe that the majority of candidates made good use of the Advance Information and prepared accordingly. They were able to approach each question with confidence and the paper was successful in allowing candidates of differing abilities to respond positively to the questions posed. Those in the top mark band had clearly conducted extensive research and tailored their revision in line with the Advance Information.

On the whole, candidates were well prepared for this examination and teachers have a clear understanding of the level of knowledge and understanding required for Option B: Food Safety and Quality. It was evident that the candidates had made a conscious effort to respond to the command words and produced answers that were generally well structured, coherent with good use of subject specific terminology. It was also positive to note that candidates were not producing lengthy introductions and conclusions that were not addressing the question.

Section A

- Q1 (a)** The majority of candidates were able to accurately name a range of mycotoxins that pose a potential risk to health with corresponding outline of health implications that may occur due to consumption.
- Quite a few candidates were able to achieve the top mark band by succinctly displaying highly competent knowledge and understanding. Conversely there were also some who were poorly prepared and were unaware of any specific health conditions. Furthermore, there were some that confused mycotoxins with preservatives or discussed how mycotoxins are controlled which was not the focus of the question.
- (b)** The responses to the description of how food traceability systems contribute to safe food production were frequently adequate to competent. The candidates were very much aware of food traceability as a quality assurance system and described at length how food can be traced. Unfortunately, they were unable to move into the highly competent mark band as there was lack of ability to describe how food traceability systems contribute to safe food production. For example, many omitted to describe withdrawal and recall procedures and how this swiftly removes the offending product from the food chain, thus reducing the food safety risk.

Section B

- Q2** This question was approached in a confident and knowledgeable manner by many candidates who were able to employ subject specific terminology and demonstrate evidence of Assessment Objective 3 (AO3) by highly competently explaining how food manufacturers can minimise microbial contamination. To reach the top mark band it was expected that candidates would make reference to a range of microbial contaminants and keep their response fully focused on commercial premises. Those placed in the adequate and lower end of competent mark bands often described very general food hygiene rules that could be applied to a domestic setting which was more akin to GCSE level. Others were very descriptive and focused on a few points such as staff hygiene and cleaning describing these in great detail. Many candidates made good use of the factfile on minimising the risk of microbial contamination and as a result had relevant subject specific terminology.
- Q3** This was a popular choice and candidates were able to consider an extensive and pertinent range of reasons for the expected increase in food allergies. This was very pleasing to see, and it was clear that there was good use made of support material available such as the factfile and PowerPoint presentation. Having said that, many candidates had additional reasons for the expected increase to those included in the support material. The candidates were fully engaged with this topic and it was evident there was a genuine interest for this section of the specification. Those in the highly competent mark band considered why allergies are expected to increase further, rather than solely discussing current rates. The Quality of Written Communication was particularly good for this question.
- Q4** Again this was a popular choice allowing candidates to demonstrate the wide range of knowledge and understanding surrounding the controversy of food additives. There was excellent cognition displayed for all four additives. The vast majority were able to describe the advantages and disadvantages of each. However, those in the top mark band displayed excellent ability to explore the controversy and were aware there was a counter argument for both the advantages and disadvantages. For example, the use of preservatives is justified to prevent food wastage, which is important economically, ethically and environmentally, however, there is still a considerable amount of food wastage. Sweeteners play a valuable role in our obesogenic society to reduce calorie intake, but they do not necessarily encourage a balanced diet for long term health. The command word to 'explore' requires the student to have a sound and detailed understanding of the issue of additives.
- Q5** Most candidates were able to address this question in a competent manner. Again, many had made use of the factfile that explains the work of DAERA as a starting point for their research and revision into this area of the specification. As a result, they were able to expertly explain how DAERA ensures food safety in relation to animal health. There was extensive knowledge and understanding of DAERA'S Agri-Food Inspection Branch and its role in the safe production of primary produce. Quality of Written Communication was very good with relevant and accurate terminology incorporated.

Principal Moderator's Report

Assessment Unit A2 2 Research Project

Overview

2022/2023 saw the return to the full assessment requirements as outlined in the specification regarding the A2 2 Research Project. This proved challenging for both teachers and students and the quality of the research reports varied more than in previous years. However, it was reassuring to see the majority of candidates being well guided through the process to produce reports of a competent A2 standard. Clear evidence exists that many centres acted effectively upon the advice and support provided from the Online Agreement Trial and the support materials. Highly competent candidates produced useful studies which demonstrated clear understanding of the process and deserved Band 4 marks.

More traditional titles were chosen by many centres, mainly from AS1 and AS2 topics of the specification, while some candidates carried out valid studies on interesting topics chosen from the A2 content. However, it should be noted that several titles were broad or knowledge testing and some required greater focus or to be narrowed to a specific aim for example, Diet or Lifestyle. To allow for a primary study, candidates should be directed to focus the investigation on behaviour/practices to help establish reasons for patterns and/or habits.

Abstracts were generally sound and mainly fairly assessed. In order to access Band 4 marks, the abstract should have a good consideration of the required elements. The abstract should reflect, and briefly outline, the content of the report and expand beyond the title. It was noted that details and findings were often too succinct in some reports, and please note that secondary findings should not be documented in this section.

The **introduction** proved demanding for many candidates. Although the rationale was well cited, only the more competent candidates identified and discussed the research problem providing direction for the study. This should form the basis of the candidate's thinking and at this point it will be evident if knowledge testing is the main aim. There should be a more meaningful discussion of ethical issues and limitations in the introduction rather than mainly generic points. This section was leniently assessed. Highly competent candidates provided sound arguments, demonstrated sound thinking and had no difficulty arriving at realistic and achievable aims.

For many candidates the **aim** followed naturally from the discussion and was clearly stated. This is where the target group, age, and gender comparison, if relevant, should be specified. One succinct **objective**, clearly stated, is sufficient.

The **literature review** continued to be the strongest area, with the top candidates displaying higher levels of coherent writing, logical thought, ability to consider both sides of the discussion and challenge what they are reading. These are high level skills and therefore warranted Band 4 marks.

It should be noted though that the level of student engagement varied from minimal to competent yet there was little differentiation in marks allocated. Referencing for the most part was accurate.

The **methodology** section proved challenging as many of the required elements were lacking in sufficient detail to allow for replication. This was a section where over marking easily occurred. In some cases, evidence of sound planning, applied thinking, evaluation and thorough documentation did not exist yet Band 4 marks were awarded.

The sampling technique should be stated and the explanation of procedures needs to be clear. Details relating to pilot distribution, collection and evaluation are required irrespective of Google Forms being used. Since a copy of the pilot is no longer a requirement in the Appendices, details of the amendments should be highlighted in this section. A pilot study executed properly, evaluated, and carefully amended can prove invaluable for providing candidates with a well-structured investigative tool capable of producing meaningful results. For some candidates, ethical considerations needed further discussion.

Top candidates produced some very focused and well-structured questionnaires based on a culmination and application of evidence from the literature review, methodology as well as application of ethical consideration. Weaker candidates focused on knowledge testing and failed to extract usable/meaningful data. Assessment was lenient with little differentiation between a highly competent and adequate questionnaire.

Whilst data was converted successfully into percentages within the results section, many of the charts selected were simplistic, lacked variation and details such as labelling of axis, titles, and data. Figures/charts were in some cases not referred to within the text or not placed in close proximity to the related discussion.

The **discussion of the results** is the heart of the report and was approached with varying degrees of success by the candidates. The more able candidates integrated discussion, analysed, interpreted results accurately and compared/contrasted their results with relevant secondary sources. They demonstrated higher level analytical skills and fully deserved their top band marks. Weaker candidates focused more on a descriptive review of results, made assumptions, and became reliant on secondary literature. The quality of the tool greatly impacted on the discussion of results. The competencies of the candidates were sometimes overstated and subsequently overmarked in this section. The full range of Assessment Criteria and mark bands should be considered when assessing the quality of discussion and analysis.

Main **conclusions** need to be specifically addressed in review of the overall aim and drawn from the primary evidence of the study, not secondary research. Some candidates clearly understood these requirements and had no difficulty summarising key findings. However, some candidates received top band marks for stating basic points.

To award top band marks in the **recommendations** section, candidates must be capable of reflection, identifying shortcomings and the ability to project the study forward. These requirements were evident in higher band candidates and valid ideas were recommended. Other candidates had difficulty with this section and suggestions stated were often unrealistic. For example, the suggestion for further study was a recommendation for improvement rather than a realistic extension.

General Observations

Many centres provided sound annotations which clearly indicated how marks were awarded. It was pleasing to see many teachers recognising strengths/weaknesses of the work or where support/guidance was provided. Some centres, however, highlighted the content of the section with little reference to the Assessment Criteria. Summative comments did not clarify teachers' thinking regarding the mark awarded. Teachers whilst wishing to acknowledge the efforts and attainment of all candidates needed to show clear differentiation between top band candidates and those less able. In some centres the mark range used was very narrow.

Attention to administration details was generally good. However, centres are asked to attach the CCEA cover sheet to each report and to ensure marks allocated are recorded accurately. Occasionally, the mark band indicated on sections of the report did not equate to the mark allocated on the eCRS.

The Senior Moderation Team recognised the ongoing challenges faced by teachers and students over the past three years due to the pandemic which has continued to impact on teaching and learning. The return to the original format of the report, whilst challenging, was handled successfully by many centres and the assessment criteria was applied fairly and consistently.

Centres are encouraged to make full use of the support provided by the Teacher/Student Guidance Booklet, exemplar materials and online Agreement Trial to assist and reassure them in the delivery of the process.

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