

FOOD STUDIES

Paper 9336/01

Theory

Key Messages

At A Level, candidates are expected to structure their answers in a manner that shows a degree of planning. Candidates are encouraged to take time planning to help them formulate answers that are well thought-out, organised and succinct.

Answers which require discussion are better tackled with extended prose than with lists and bullet points. The way in which candidates respond to questions should indicate a progression from IGCSE/O Level.

General Comments

Many candidates showed an impressive depth of knowledge and it was evident that preparation for this examination had been thorough. Some questions were more favoured than others. Candidates are reminded to read the questions carefully; credit is not awarded for irrelevant information.

Comments on Specific Questions

Section A

Question 1

- (a) There were some good answers about the term monosaccharide and the characteristics of simple sugars. A minority of candidates were able to give clear definitions of the meaning of *intrinsic sugars* and *extrinsic sugars*.
- (b) This question was very well answered.
- (c) Many candidates scored full credit for this question. Minerals that are not listed on the syllabus were also accepted, if their functions were correctly described.
- (d) Many candidates were unsure of the main functions of thiamin and niacin and gave repetitive answers. Whilst there is overlap in the functions of the B group vitamins, each has its own distinct roles.
- (e) Many candidates clearly understood the importance of NSP in the diet. For some candidates, more careful planning could have avoided repetition and unnecessarily lengthy responses.

Question 2

- (a) Candidates who did not score well on this question only referenced the ileum. Some candidates gave irrelevant information about the absorption of fat.
- (b) Some candidates mistakenly thought that this question was about the absorption of fat *only*. Candidates who answered this question well were able to discuss the diffusion of molecules through a permeable membrane; the osmosis of water; and the need for ATP when molecules travel against a concentration gradient.
- (c) This question was generally well answered, with reference being made to phytates, oxalates, NSP and vitamin D. Very few candidates commented on the role of hydrochloric acid in the stomach. Some candidates included irrelevant discussion of why and how a person may have difficulty obtaining vitamin D.
- (d) Candidates displayed a good depth of knowledge in their responses to this question about regulating blood sugar level. Weaker-performing candidates often omitted an explanation of how the brain signals to the pancreas to produce insulin.
- (e) Few candidates made the simple observation that deamination occurs in the body when there is an excessive intake of protein. Candidates generally showed good knowledge of how amino acids are broken down in the liver and of how ammonia is converted into urea for excretion.
- (f) Candidates' knowledge of cystic fibrosis was poor.

Question 3

- (a) Many candidates showed excellent knowledge of the destruction of water-soluble vitamins.
- (b) Many candidates scored full credit for this question.
- (c) There were a number of inaccurate or inappropriate responses to this question. Too many candidates discussed how anaemia arises which was not asked for in the question. There were many unnecessary references to the need for vitamin C. Many candidates focused on anaemia in girls around the time of menstruation, rather than the symptoms of anaemia for all people. The majority of candidates displayed very limited knowledge of the symptoms of an excess of iron.
- (d) This question on the functions of water in the body was answered particularly well.
- (e) In general, candidates were confident to describe the symptoms of dehydration but found it challenging to explain how water is lost and how this affects certain groups of people more than others. Correct references were made to people in hot climates and to those who lose water through extreme activity. References to pregnant women, the elderly, babies, convalescents, diabetics and lactating mothers were not commonly seen.

Question 4

- (a) This question was well answered.
- (b) Candidates appeared to have a basic understanding of the terms HDL and LDL, allowing them to access some of the credit available for this question. Very few candidates made reference to the concept of cholesterol being transported by lipoproteins.
- (c) This question was generally well answered, with candidates correctly naming examples of different fatty acids.
- (d) This question was not well answered. Some candidates knew the recommended daily amount of sodium for an adult; very few knew the recommended daily amount of sodium for a baby. The best answers were those that recognised that the underdeveloped organs of a baby, in particular the kidneys, mean that the recommended daily amount of sodium for babies is significantly less than that of an adult (0–2 g).

Question 5

- (a) Many candidates did not discuss extraction rates and so limited the credit available to them. There was some uncertainty about the process of milling wheat though most candidates were able to describe the cleaning and crushing of the grain.
- (b) This question about gluten was well answered. Many candidates referred to the way in which the protein coagulates.
- (c) This question was generally poorly answered by candidates. Most candidates were able to discuss enzymic browning with clarity, and recognised the continual loss of moisture from fruits and vegetables after harvesting. Fewer candidates explained that this loss of moisture was most significant in fruits and vegetables with high water content like cucumbers. Many responses discussed how starch is converted to sugars. Very few candidates discussed fermentation or the action of oxidase enzymes.
- (d) There were good responses to this question about the storage of cereals. Very few candidates knew that *Bacillus cereus* is the food poisoning bacteria likely to be found in cereals.
- (e) This question was answered very well.

Question 6

- (a) Very few candidates gave an accurate description of different types of vegetarians and their specific needs. For this question it was not enough to discuss healthy eating goals in general. Some weaker-performing candidates included reasons about why people choose to be vegetarians, which was irrelevant.
- (b) There were some very accurate and detailed responses to this question, showing that candidates understood the extrusion of TVP into a low pressure environment and its subsequent expansion. Candidates who were unsure of the process wrote simple statements such as “from soya”, which did not provide the required level of detail.
- (c) Detail was lacking from a number of the responses to this question; it is not enough to state that TVP “is nutritious”. Accurate information about its nutritional content was required.

- (d) Answers to this question showed accurate knowledge of a wide range of labelling types. Reasons about why each piece of information is useful to the consumer were required.

Question 7

- (a) This question was popular with many candidates. Answers showed a very good range of acceptable responses. Many candidates had not planned their answers in advance and so the responses given were disorganised and sometimes incoherent.
- (b) Candidates' knowledge of the use of food tables or nutritional software to determine the nutritional content of different foods was poor. Most candidates gained some credit here by explaining that food packaging can be useful for this purpose.
- (c) BMR appears to be a well understood topic by most candidates. Good responses connected a variety of factors with suitable explanations of the impact on a person's BMR, as well as giving an accurate definition of BMR.
- (d) Candidates should be aware of specific details of kwashiorkor and marasmus and the differences between these two types of protein-energy malnutrition.

Question 8

- (a) Some candidates excelled themselves in their descriptions of how to manufacture margarine. Discussion of the process of hydrogenation was frequently seen.
- (b) The question was answered well. Many candidates described vigorous beating of the mixture and the addition of egg after cooling the mixture to avoid coagulation. Very few candidates referred to the gelatinisation of the starch in the flour. The ratio of the quantities of the ingredients given by many students was unworkable.
- (c) Many responses to this question referred to antioxidants, preservatives, colourings and flavourings. Very few candidates suggested that the choux pastry would need an emulsifier, stabiliser or a humectant.
- (d) This was a question about packaging; many candidates wrote instead about storage. Some candidates mentioned packaging materials but did not give reasons for their choices.

FOOD STUDIES

Paper 9336/02
Practical

Key Messages

- It is important that the candidates' Preparation Sheets are assembled in the correct order; to assist with this, each carbonised sheet has a page number printed on it.
- Teachers marking the Practical Test are reminded that the mark scheme published by Cambridge must be followed accurately. Reference must be made to the list of dishes planned by the candidate on Preparation Sheets. Centres are reminded that all the work carried out in the Preparation Session is marked externally.
- If a dish lacks skill, the maximum credit available for that dish must be reduced. If a skill is repeated in other dishes, the maximum credit available must be reduced on the second and any subsequent occasions and may not be transferred to other dishes. If a dish is inedible because it is undercooked or overcooked, no credit should be given.
- Before the Practical Test, Examiners must prepare an individual Working Mark Sheet for each candidate. The maximum credit available for each dish, together with the actual credit awarded, must be clearly indicated on the Working Mark Sheet.
- Detailed comments must be written to justify the credit awarded. Reference should be made to the colour, flavour, texture and consistency of dishes, as appropriate.
- No credit should be awarded for any dish which is planned but not served and credit cannot be transferred to other dishes. Any dish prepared which is not on the original Time Plan cannot be credited.
- It is important that Examiners give as much information as possible on each candidate's method of working, in order to justify the credit awarded. Candidates who demonstrate only low-level skills cannot be awarded high credit in this section.

General Comments

The quality of the written answers was generally good. Responses were set out clearly and candidates had sufficient time to complete all the sections of the Question Paper.

Some candidates chose dishes that were not appropriate or were not sufficiently skilful for an Advance Level Practical Test. Apple crumble, fried chicken and fried rice are examples of such dishes. Credit for each dish should be awarded according to the degree of skill demonstrated. Examiners should not award full credit without careful consideration. Discretion and professional judgement must be used to ensure that the maximum credit available for each dish fairly reflects its complexity, or otherwise. The actual credit awarded should be consistent with the comments recorded by Examiners about each dish.

Candidates' Time Plans were generally very good with clear instructions on methods, cooking times and temperatures. Most candidates listed an appropriate amount of work to be carried out in the 30 minutes of the Preparation Session before the start of the Practical Test. Candidates are reminded that they must not include any processes that are part of the preparation of dishes, such as whisking egg whites, creaming mixtures and dissolving gelatine during the Preparation Session. Some Time Plans were too detailed, giving precise information for every stage of preparation.

Some candidates did not allow sufficient time for cooling a dish before decorating, or for serving cold. Many candidates listed too much work for the final 30 minutes of the test; consequently, some dishes may not have been properly cooked or served. Some candidates were unable to dovetail the steps required to prepare

their dishes and instead listed all stages sequentially. All Time Plans should include at least two sessions of washing up during the Practical Test plus one at the end.

In **part (b)** many candidates made a dish a flaky pastry, such as vol au vent. Some candidates made choux pastry dishes, such as profiteroles. Candidates should include as many different skills as possible to achieve high credit, for example choux buns filled with crème pâtissière will gain more credit than choux buns filled with cream. Dishes like rice pilaff and gulab jamun are not very skilful; some Centres recognised that these dishes were not skilful and adjusted the marks accordingly.

Part (c)(iii) was not answered very well by many candidates. Sometimes comments were made about the type of meal for which the dish would be suitable or perhaps suitable accompaniments for the dish. These are not practical reasons for choice. In all cases, examples are needed to support the reasons for the choice of dishes. Candidates should also discuss the skills that they are using. Other responses which were not awarded credit included making a dish in advance and freezing it for future use.

In **part (c)(iv)**, candidates were asked to comment on the nutritional value of the dish chosen in **part (b)** of the question. Some answers related to *all* of the dishes chosen, including those in **part (a)**. There were some excellent accounts, but also a number of vague responses; precise information is required at Advanced Level. Nutrients must be linked to ingredients and to functions. Simply stating that the dish contains particular vitamins and minerals is not sufficient unless the functions are stated.

Comments on Specific Questions

Question 1

- (a) Most candidates chose dishes which showed the making of a roux sauce, for example lasagne or pancakes filled with a tomato sauce and topped with a cheese sauce. Some candidates also prepared a blended sauce, such as custard made to accompany a pudding or part of a trifle.
- (c) In **part (c)(i)** some of the answers given were vague. Many candidates gave the use of a sauce but an incorrect example. Some of the answers contained large amounts of repetition which was not credited. In **part (c)(ii)**, most candidates mentioned gelatinisation and some were able to give detailed accounts of the effects of moist heat on starch.

Question 2

- (a) A variety of dishes were made which demonstrated the use of both conduction and convection, such as cakes baked in the oven. Some candidates used grilling to demonstrate heat transfer by radiation.
- (c) Some very good answers were given to **part (c)(i)** with many candidates giving detailed accounts of all three methods of heat transfer. In **part (c)(ii)** there were some good accounts with candidates discussing coagulation of protein, caramelisation of sugar and dextrinisation of starch. The role of carbon dioxide in the raising cake mixtures was also discussed.

Question 3

- (a) Many candidates made cakes by the whisking and creaming methods to show the incorporation of air has a raising agent. Choux pastry was often made to show the use of steam as a raising agent. Most candidates made a yeast mixture to show the use of carbon dioxide as a raising agent.
- (c) Most candidates were able to discuss raising agents and how they cause mixtures to expand well in **part (c)(i)**. In **part (c)(ii)** the rules to follow when using raising agents were not well explained by candidates. Some candidates did mention the correct conditions for using yeast and the correct conditions for the storage of baking powder.

FOOD STUDIES

Paper 9336/03
Unsupervised Work

Key Messages

- Centres are strongly encouraged to make **Section 7.2** of the syllabus which provides details of the specific requirements of the investigation available to candidates.
- The subject of the Coursework Investigation should be appropriate to the syllabus.
- Reference should be made to the original aims and objectives in both the conclusion and evaluation.
- Candidates are advised that it is not necessary to print each page on card.

General Comments

Most of the Coursework Investigations were well presented, interesting and informative. There were many impressive and varied titles showing originality of thought and freshness of ideas. Overall, the general quality of the work presented had improved.

There were, however, some pieces of work which showed little evidence of investigative skills, drew conclusions for which there was no evidence and consisted mainly of pages of information already available in the public domain. Occasionally, the topic chosen was not appropriate or related to the syllabus or was too broad. Candidates should be encouraged to keep in mind their original aim and objectives so that they keep on task.

Some candidates spent a huge amount of time on the *Theoretical research* at the expense of areas such as *Conclusions* and *Evaluation*. Where books, websites etc. are quoted, then the source of the material must be indicated.

The more successful candidates followed the framework set out in the syllabus and used clearly defined parameters and realistic boundaries when compiling their studies. It would be useful for all candidates to have their own copy of the marking framework in **Section 7.2** of the syllabus for reference.

Choice and justification

The title must be relevant to the syllabus. Stronger candidates actually identified from which section of the syllabus their ideas had originated. The title must also be *specific*, for example a title such as, 'An investigation into the amount of iron present in the diet of Year 12 girls at school X' immediately gives parameters, whereas one entitled, 'Do adolescents have enough iron?' sets few limits to the study.

It is important that reasons for the choice of coursework title are given. Most candidates gave at least two reasons but better candidates gave several. Appropriate reasons could be that a subject is of personal interest; is relevant to world health issues; or is topical in the local media.

Candidates are expected to state clearly and briefly the investigative methodology and resources they intend to use in their study. There is a check list to help with selection in the syllabus.

Planning

In some cases, this section was not considered in enough depth. It is expected that the aims and objectives of the study are clearly defined so that it will be possible, when evaluating, to assess whether those objectives have been met. The main aim is always to investigate the problem identified in the title; the objectives are practical tasks that can help to achieve the overall aim. There should be several objectives since they are the reference points against which the success of the Coursework Investigation will be judged.

Sometimes objectives were set out in such a way that they could not be made into achievable tasks. It is very difficult to measure accurately the success of an objective such as, 'ensure that adolescents know the importance of calcium in their diet'.

Many candidates gave detailed lists of their proposed activities and dates when they would be carried out. Some candidates made use of Gantt charts and some produced a focus of study work plan or mind map. These tools show the importance of thorough, logical planning and an appreciation of the amount of time which needs to be allocated to certain steps. When evaluating the Coursework Investigation, it is useful to highlight areas which took less or more time than expected. Mapping the planning of the Coursework Investigation in this way allows contingencies to be discussed, making for an interesting investigation.

To achieve high marks it is important that each method of data collection and collation used is considered and justified. It is helpful to explain how each method will help to achieve particular objectives. Some candidates mentioned the methods they intended to use but gave no further information. The more successful candidates had drawn tables with columns headed '*how, when, where, with whom*' following the criteria in **Section 7.2** of the syllabus.

As indicated in **Section 7.2** of the syllabus, samples of questionnaires, interview questions etc. should be included in this section or in an appendix.

Theoretical research

All candidates produced evidence of research but the amount, quality and relevance was variable. Some candidates repeated information which had already been given in an introduction or abstract. Some candidates failed to keep to the parameters of their focus group.

Some theoretical research accounts were disjointed and too long because relevant evidence had not been selected appropriately from sources and synthesised. Most candidates listed their sources in the bibliography. Acknowledgement should be made to any quotation, diagram, chart, figure or table referred to in the *Theoretical research* section.

Some candidates successfully incorporated topical information, such as from newspaper articles and government reports.

Although there is no recommended length for this section of the Coursework Investigation, the content should form the basis for the investigative work.

Investigation skills

This is an important section with an allocation of 20% of the marks. Possible methodology for qualitative and quantitative investigation is suggested in the syllabus.

Many candidates this year had clearly described, in detail, their proposed methodologies by listing the intention of the procedures and how they related to their initial aims and objectives. They also stated how the data from each method would be presented and analysed.

Investigative methods used included: visits to shops, markets, farms, factories and community health centres; questionnaires; interviews; and tasting panels. Photographs were often included which were particularly useful, especially when annotated, because they demonstrate that the study is unique. Some candidates copied images of dishes from other sources and attempted to pass them off as their own work; such malpractice is not tolerated by Cambridge. Candidates are advised to include their candidate number in the photographs of their dishes, so as to authenticate their work. It is encouraging to note there was more evidence that questions had been pretested before being used in the Coursework Investigation.

When developing questions to include in interviews or questionnaires, candidates should ensure that each question is objective, will add value to the study, is relevant to the original plan and will produce data which it is possible to analyse. Candidates should attempt to use a mix of open and closed questions.

It remains a matter of some concern that some candidates are continuing to ask questions in interviews which could be readily answered by looking in books and other reference sources. There is no need, for example, to ask a doctor or nutritionist the causes of obesity. Professionals should be asked questions that do not have obvious answers. It is the experience of carrying out interviews that is important, not the status

of the interviewee. It is acceptable to email professionals rather than carry out a personal visit, which is often very difficult to schedule.

It is neither expected nor recommended that candidates produce case studies including medical details or assessing individuals for symptoms of a deficiency disease. These practices are beyond the ethical guidelines of the syllabus. Similarly, in respect of confidentiality, questions on family income or social status should not be asked.

Candidates should be encouraged to use food diaries more thoroughly. They are a valuable resource and can yield a great deal of useful data if used correctly. If the study is focused on a specific nutrient, e.g. calcium, then a checklist can be used. The length of time for the food diary should be carefully considered and justified by the candidate. This year candidates showed a good knowledge of sensory testing.

Candidates should be reminded to keep their practical work simple. Some candidates used answers from the questionnaires to decide on the dishes that they should make and some did comparative work showing how to modify a recipe to include more iron or provide a gluten free alternative. Many candidates used nutritional analysis.

Collation and presentation of data

This section is worth 20% of the total marks awarded. All the information from each of the methods of data collection used should be presented in an appropriate form which is clear and easy to understand for the reader and appropriate to the main aims and objectives.

Candidates usually presented their findings well and were able to demonstrate their skill at computer graphics. The range of methods used included prose, tables, line graphs, bar charts, pie charts, histograms, comparison charts and photographs. Many candidates presented their information in a wide range of different ways. Most of the photographs and data were well presented, with the inclusion of titles and appropriate annotations.

Some candidates presented information without reference to the Coursework Investigation. If the information relates to a questionnaire or interview it is helpful to set out each question before presenting the results. The reader should not have to refer to the questionnaire in the planning section or appendix to understand the data presented. Data analysis should be presented separately from summaries and conclusions.

Conclusions

This section is worth 10% of the total marks but was often dealt with far too briefly. The conclusion process allows candidates to summarise their findings from their investigative and theoretical data. It should be separate from, not interwoven into, the presentation of the data collected.

Some candidates failed to provide evidence to support the conclusions drawn as if the conclusions had been established without taking any of the collected data into consideration. To gain credit, conclusions must be supported by data, which can then lead to relevant recommendations linked to the original aims and objectives.

The recommendations arising from the Coursework Investigation could be for individuals, families, organisations or governments. They may or may not be wholly practicable; more important is that the candidate can develop solutions based on the evidence from their Coursework Investigation.

Weaker candidates listed recommendations that had only very tenuous links to the Coursework Investigation title or made suggestions for educating large numbers of people on a range of matters unrelated to the original aim and objectives. Proposals should be realistic, although there may be time or financial constraints attached.

Evaluation

This is an important section and is worth 10% of the final mark, yet there are still many candidates who write only a very brief evaluation of their work. Stronger candidates provided a thorough evaluation of their study by suggesting improvements which could be made, referring back to their objectives and by providing evidence of where in the study these had been accomplished. As outlined in **Section 7.2** of the syllabus, the entire Coursework Investigation should be reviewed and comments made on the strengths and weaknesses of the work. Candidates should not solely describe their own strengths and weaknesses, but should review

each aspect of the *whole* study and make suggestions for improving weaker areas and for extending the research.

The original plan of action should be considered and the expected time taken compared with the actual time taken. The success or lack of success of each of the methods of data collection used should also be considered, as well as the methods used for collating the data.

Most candidates were able to state personal benefits from carrying out the Coursework Investigation and these were well communicated. Sometimes candidates described problems they had encountered and described how they had dealt with them.

Presentation

Candidates are to be congratulated on the presentation of their work.

With very few exceptions, the work was attractively presented, logically and sequentially organised with care taken to ensure uniformity of presentation throughout. Content lists, acknowledgements and bibliographies were included, some with reference to how and why these resources were used.

Candidates generally adhered to the word limit.

Some candidates included bookmarks, pamphlets and posters that they had designed themselves as part of their Coursework Investigation to use with their target group or in classrooms, canteens and meeting halls.