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FOREWORD

This booklet contains reports written by Examiners on the work of candidates in certain papers. **Its contents are primarily for the information of the subject teachers concerned.**

FOOD STUDIES

GCE Advanced Level

Paper 9336/01

Theory

General comments

The overall standard of work in this year's examination was satisfactory. There were several outstanding scripts, demonstrating a high level of knowledge and understanding and an ability to apply that knowledge to specific situations. Many answers, however, lacked detail. There was evidence that a number of candidates failed to read questions carefully and did not tailor their responses appropriately; their responses often lacked relevance. Candidates often gave too much detail to parts of a question which were worth few marks. Mark allocations should be used for guidance; they are meant to help candidates to assess the amount of time to spend on each part of a question and to judge the amount of detail to include. It is impossible to give guidance on the expected length of an answer, but if candidates write in excess of eight sides for one answer it is safe to assume that too much unnecessary detail has been included. Some of the poorer answers were merely accounts that contained all the information a candidate could recall on a particular topic. This not only wastes time but also suggests an inability to select information that is appropriate.

Sometimes, candidates began each question on a new page or, in a number of Centres, in a new answer booklet. This is unnecessary and wastes paper. It is, however, requested that each answer is separated by a line ruled across the page; a few candidates began the next answer on the following line so that one answer was confused with the next. Individual answers were not always clearly numbered; the number of the question and the letters to identify parts of questions should be clearly indicated. It would be helpful if, at the end of the examination, time was allowed to check that the numbers of the questions answered are listed on the front cover as requested. Occasionally pages were not even assembled in the correct order.

Although it is stated in the instructions on the front of the question paper that correction fluid should not be used, there are several Centres that allow it to be used. Any work to be ignored need only have a neat line ruled through it. Sometimes the string used to fasten sheets together was tied too tightly making it difficult to turn pages without tearing the paper. There is always the risk that some of the pages will become detached and possibly lost. It would be appreciated if candidates were reminded that string should be tied loosely but securely.

Comments on specific questions

Section A

Question 1

- (a) This was a popular question and this part was particularly well answered. Some responses were, however, too lengthy because they included unnecessary information. High scores were achieved by those candidates who could classify carbohydrates, give examples of each type, and include details of the structure of different carbohydrates.
- (b)(i) It was expected that candidates would note that starches and sugars are energy foods and that glycogen is used to store energy. Many candidates correctly noted that non-starch polysaccharide is important for the efficient functioning of the digestive tract, although other valid points were credited.
- (ii) The effects of an excess of different types of carbohydrate were well known, although answers tended to emphasise the link with obesity and possible coronary heart disease. The risk of diabetes was frequently mentioned but few candidates mentioned tooth decay. It was rarely stated that an excess of NSP could result in a shorter transit time for food through the digestive tract; it is possible that this will not allow sufficient time for the absorption of some nutrients. NSP does, however, slow down the rate of sugar absorption, reducing the risk of diabetes.
- (c) There were many excellent accounts of the gelatinisation process, indicating that candidates had a sound understanding of the process.

Question 2

- (a) Candidates were usually able to give several reasons for following a vegetarian diet but there was a general lack of detail. Most answers included the fact that religion would be a reason. It was hoped that additional information would be included, perhaps noting that in the Hindu religion cows are sacred. The question asked for reasons to be discussed so scores were reduced if only a list of possible reasons was given. Many candidates stated that a vegetarian diet may be healthier but few extended their answer with a possible link to, for example, coronary heart disease because animal fats are saturated and are associated with cholesterol.
- (b) Candidates were usually able to name some of the types of vegetarian diet but were often confused about definitions. The difference between a lacto-vegetarian and an ovo-lacto-vegetarian was not well understood.
- (c) There were several very good discussions on the problems associated with a vegetarian diet but many answers were too vague. This part of the question was worth more than half of the marks so it was surprising that it was chosen by those with little obvious knowledge of nutrients.

It was usually noted that HBV protein is found in animal foods and that those vegetarians who included eggs and dairy products would have no problem. It was expected that soya beans would be mentioned as a source of HBV protein and that soya products would be well known. Most answers gave information about protein complementation, giving suggested pairing of LBV protein foods and an explanation of the concept. Few candidates noted that TVP could be included in one of its forms.

It was usually stated that vitamin B12, since it is found in meat, could be supplied to vegetarians in tablet form but it was rarely noted that fortified breakfast cereals and yeast extract are sources of the vitamin.

Vegetarians who consume milk, cheese and eggs will not be deficient in vitamin A. It was expected that candidates would be able to explain that beta-carotene in orange and green vegetables can be converted to vitamin A in the body. It is, however, a less valuable source so will be required in large quantities. Margarine is fortified with vitamin A but this fact was rarely mentioned.

There were a few excellent accounts of how iron can be included in a vegetarian diet since its main sources are red meat, liver and egg yolk. It was hoped that candidates would be able to explain that iron is absorbed in its ferrous form but that in green vegetables and whole grains it is in its ferric form. Vitamin C is required to convert the iron into a form in which it can be absorbed.

Generally, the responses to this part of the question lacked depth and understanding.

Question 3

- (a) The elements that make up protein were well known; candidates usually scored full marks.
- (b)(i) The better answers described how amino acids combine through their amino and carboxyl groups to form a dipeptide and that it is a condensation process. Polypeptide chains are composed of amino acids in a variety of combinations to make many different proteins. The secondary structure of protein molecules is the result of the folding, pleating and spiral arrangement of the primary structure. The stability of the structure depends on the presence of hydrogen bonds and ionic and disulphide linkages.
- (ii) Many candidates were unable to classify globular proteins as albumin and globulin and fibrous proteins as collagen and elastin. The shape of each type of protein was well known and named examples were often given.

- (b) Most accounts of the effect of heat, agitation and pH on protein showed a sound level of understanding. It was usually stated that proteins would be denatured, resulting in a change of structure and a loss of functions. Many correctly noted that these changes are irreversible.

The effect of heat on egg was the example usually discussed; the temperature of coagulation was noted and the changes described. Other examples of coagulation, which could have been given, were the setting of egg custards, the use of egg to bind rissoles and the setting of gluten to hold the risen shape of baked goods.

The whisking of egg white to form a foam was well described and well understood.

Changes in pH and their effect on protein were discussed in less detail although the clotting of milk due to acidic conditions was frequently well explained. It was hoped that candidates would have noted that digestive enzymes have a specific pH in which to function and that they are inactivated when conditions change.

Question 4

- (a) This question was the least popular question in **Section A**. Those who chose the question often scored well. Many ways of making food more digestible were discussed. They included cooking starch so that digestion would begin in the mouth, tenderising tough cuts of meat using moist methods of cooking, reducing fat because it forms a waterproof layer around other foods preventing the action of enzymes, and cutting food into small pieces. Many candidates noted that colour, flavour and smell of food stimulate the flow of digestive juices. Full marks were gained if explanations were given for the points made, since the question asked for a discussion of ways and not a list of ways of making food more digestible.
- (b)(i) There were many excellent accounts of the digestion of nutrients found in eggs although some candidates were unable to identify the nutrients in eggs that undergo digestion. Answers should have focused on the digestion of protein and fat. Marks were only awarded if enzymes were identified and placed in the correct part of the digestive tract and if the appropriate products of digestion were named. Many candidates gave accurate accounts of all the stages of digestion; high marks were scored.
- (ii) Accounts of the absorption and utilisation of protein and fat were less accurate. It was hoped that it would be well known that amino acids are absorbed through villi in the ileum and that they pass into blood capillaries before being transported to the liver by the hepatic portal vein. Fats, on the other hand, enter the lacteals in the villi before recombining to form fats and passing into the lymphatic system, thence into the blood stream. Many accounts were confusing, suggesting a lack of understanding.

The utilisation of protein and fat were generally considered in too superficial a manner. It was usually stated that protein is used for growth and maintenance but few candidates mentioned that protein is also necessary for the production of enzymes, antibodies and hormones or that in the process known as transamination, non-essential amino acids are synthesised. Some answers included a description of deamination and concluded with information on the production and use of energy and the storage of excess glycogen as fat. Good accounts were usually given of the use of energy in the body and the storage of excess fat.

Question 5

- (a) There were many excellent accounts of the uses of fats and oils in food preparation, illustrated with appropriate examples. Uses included spreading, aerating, frying, shortening and flavouring. There were many others and credit was given for each different use identified. Unfortunately, some candidates answered the question in a superficial way, merely listing dishes which used fat as one of the ingredients. This gave no opportunity for the discussion that the question asked for.
- (b) The problems associated with the consumption of fat were discussed well. Most answers included information on coronary heart disease, obesity and hypertension with appropriate detail in support of statements made.
- (c) There were many well explained descriptions of the effect of heat on fats and oils. Mention was usually made of smoke point and flash point, together with supporting information on the decomposition of fats and oils. Better answers gave temperatures at which changes occur in named examples.

- (d)(i) Candidates' understanding of oxidative rancidity was often poor. Some answers mentioned that rancid fats have an unpleasant flavour but sometimes this was the only information given. It was hoped that oxidative rancidity would be known to be a reaction between unsaturated triglycerides and oxygen in the air, a process accelerated by heat and light. One or two candidates noted that aldehydes and ketones are formed.

Accounts on antioxidants were more detailed. It was usually known that they are substances often added to food to prevent rancidity and enzymic browning. It was frequently noted that vitamin E is an example of an antioxidant which is added to fats and fatty foods to preserve them.

Question 6

- (a) This was the least popular question on the paper and those candidates who chose to answer it tended to score low marks because the amount of detail included was insufficient. It was expected that candidates would be able to suggest suitable ingredients for making a rich cake, and would support their suggestions with good reasons. The purpose of each ingredient should have been discussed before giving information on the choice of ingredients to fulfil each purpose. Credit was given for each appropriate ingredient suggested. A good response could have been that soft flour is recommended because of its low gluten content; this produces a soft, tender crumb. If plain flour is used, a chemical raising agent is necessary in order to produce carbon dioxide to raise the mixture. Self-raising flour could be used instead. Few candidates noted that although wholemeal flour could be used it would give a heavier texture. It was expected that the choice of sugar and fat would also be discussed and that it would be noted that fresh eggs should be chosen because of their greater capacity for trapping air.
- (b)(i) There were few good accounts of the action of the chemical raising agent during baking. Candidates were not always sure that bicarbonate of soda and cream of tartar (or another suitable acid) are two of the components of baking powder. It was well known that carbon dioxide is the gas which is produced by the chemical raising agent but there were often few other details.
- (ii) The accounts of other changes taking place when a rich cake is baked were generally good; the amount of detail was appropriate, suggesting a sound knowledge of the topic.

Question 7

- (a) Many candidates answered this part of the question without noting the introductory sentence. It stated that cases of food poisoning have increased in recent years. Candidates were asked to explain possible reasons for this. It was expected that account would be taken of the fact that more people eat meals away from home, more convenience foods are used, shopping habits have changed, meaning food is often required to be stored at home, and that there is more mass catering. Many answers included the point that sometimes untrained staff handle food in shops, restaurants and on stalls. It was disappointing that the focus of many answers was the reasons for food poisoning.
- (b)(i) There were many excellent explanations on the effects of temperature and salt on bacteria. Better answers gave precise temperatures at which changes take place. It was disappointing to note, however, that a small number of candidates believed that bacteria are destroyed at low temperatures. A few answers indicated that the difference between freezing and refrigeration was not fully understood.
- (ii) It was well known that salt withdraws water from cells by osmosis and that since bacteria need water for reproduction this process is halted.
- (c) There was some confusion on the use of radiation for inhibiting bacterial growth. Although it is banned in some countries its use is still acknowledged. It is impossible to eliminate all micro-organisms since spores are resistant to the process. Gamma rays can pass through frozen foods whilst in their packaging, making it a quick method. It does not require a temperature change in foods but destroys heat-sensitive micro-organisms such as the pathogenic bacteria harboured in frozen foods such as shellfish. It is used on grains and spices without detection.
- (d) There were many informative accounts of other ways in which food poisoning is caused. Most candidates mentioned that fertilisers and weed killers could be harmful. Some of the other causes of food poisoning mentioned were toxins in red kidney beans, myotoxins from moulds and water pollution. Although most candidates noted one or two causes, answers tended to be brief.

Question 8

This was a popular question and although most answers were very lengthy the marks gained were disappointing. Candidates tended to discuss one or two points at length, producing answers of limited breadth.

- (a) It was expected that when discussing the influence of economic factors on food choice, candidates would note that nutritious food does not have to be expensive; tough meat can be tenderised and dairy foods can provide HBV protein more cheaply than meat. It was often correctly stated that a budget for food should be worked out to avoid overspending and shopping lists can prevent the purchase of unnecessary foods. It was usually noted that locally grown food is cheaper than imported foods. It was well known that poverty limits food choice and that poorer people spend a higher proportion of their income on food.
- (b) The availability of food depends on where a person lives; different types of foods are available in different countries. Candidates usually noted that climate and quality of land influence the type of crops grown or animals reared and that foods are available in varying amounts according to the season. It was hoped that mention would have been made of different types of preservation, which allow food to be transported and therefore available in different countries from those in which it is produced. Technology has led to the creation of new foods such as TVP, making HBV protein available in many more forms.
- (c) Food choice can, of course, be affected by nutritional knowledge. Many answers highlighted the need to reduce the amount of sugar, salt and saturated fat because of the risks of diabetes, obesity and coronary heart disease. A few candidates observed that nutritional information on packaging could be useful when choosing food.
- (d) The choice of food is affected by the ways in which food is sold. There were many excellent accounts of the effect of advertising and packaging. Candidates often discussed the advantages and disadvantages of shopping in supermarkets or at local markets. Special offers and the positioning of food in stores were often noted.
- (e) There were many interesting accounts of the effect of culture and social habits on food choice. Religious beliefs were outlined, as were different types of vegetarian diet. Certain foods are associated with festivals; meals can be special occasions to share with friends or can symbolise events like weddings and birthdays. It was well known that individuals follow the food choices of their families or friends; young people eat fast foods because their peers are doing the same.
- (f) The environment can often determine food availability. Rice is the staple food in China and potatoes are important in the UK. People migrate and take their eating habits with them so most cities have foods from a variety of cultures. Several candidates observed, correctly, that more women are employed outside the home nowadays, so convenience foods may be chosen. Although they are usually more expensive this is offset by the fact that there is more disposable income in the family. There is an increased demand for snack food. It was usually noted that convenience foods tend to contain higher levels of fat, sugar and salt and this is not healthy.

Obviously, there were many possible points and credit was given wherever possible. Candidates should be reminded that it is more important to give a range of points in each part than to emphasise a limited number of ideas.

Paper 9336/02

Practical

General comments

The quality of the written answers was generally very good. Scripts were clearly set out and candidates seemed to have had sufficient time to answer all sections of the paper. In one or two instances pages were assembled in the wrong order; it is important that care is taken to fasten pages together in the correct order since it is time-wasting for the Examiner. The carbonised sheets are numbered so there should be no difficulty in putting them in order. It is the candidate's responsibility to ensure that all pages are placed in the correct order and are fastened together securely.

Teachers who mark practical tests in Centres are reminded that the mark scheme provided must be followed closely. The maximum mark available for each dish must be entered on the individual mark sheet before the examination begins. Examiners must refer to the list of dishes planned on page one of the preparation sheets. If the dish chosen lacks skill, the maximum mark must be reduced; the extra marks cannot be transferred to another dish; consequently, the total mark for results will be lower than the maximum possible mark. A dish which is planned but not served must be awarded a zero mark; again, the marks for that dish cannot be redistributed. Any dishes which are prepared but were not part of the original plan made under examination conditions cannot be marked. Detailed comments are necessary in order to justify the marks awarded to the dishes prepared. It is unacceptable to state that a dish was 'good', 'satisfactory' or 'excellent'. It is expected that colour, flavour, texture and serving will be commented on. It is unlikely that all dishes prepared by a candidate can be worth full marks, in fact it is rare that any dish is awarded the maximum mark available. The work carried out by candidates during the planning session is marked in Cambridge. Occasionally, teachers have marked this work although it is clearly stated otherwise in instructions to Centres.

Time plans were very good and gave clear instructions on the methods to be followed, the cooking times and temperatures and, in most cases, the garnishes, decorations and method of serving. Most candidates listed an appropriate amount of work to be carried out in the half hour before the start of the examination. Candidates should be advised that no processes are to be carried out which are part of the preparation of dishes. Examiners occasionally drew attention to the fact that a candidate had planned inappropriate work for this time. Many candidates gave too much detail in their time plan, writing out every stage of preparation. This is too time-consuming and produces a plan which could be less useful during the practical test. Several candidates left too much work to be carried out during the last half hour; this results in no time allowance for over-running the planned time and dishes being prepared in a rush. The worst consequence is that dishes are served before they are thoroughly cooked or are not served at all. The best plans have all or most of the preparation and cooking done in the first two hours, leaving the last half hour for serving and final washing up.

It is expected that washing up is completed by the end of the practical test. Some candidates were unable to 'dove tail' their dishes and wrote out all stages of the methods as one process. Even if it was indicated that cooling was necessary before the next stage, no time was allowed for this.

The section of the written work which asks candidates to give practical reasons for choice was generally not done well. Comments were often made on the occasions for which the dishes would be suitable or on how well the dish would store in the freezer. These are not practical reasons for choice. It is expected that candidates give reasons for choosing to prepare particular dishes in the practical test. It was often correctly noted that the ingredients were readily available and were not expensive to buy. Some candidates commented that the dish was colourful and attractive, so would look pleasing when served. It would be appropriate to mention that some dishes did not require the use of an oven, making oven management easier, or that labour saving equipment could be used to shorten preparation time. Many candidates correctly noted that some dishes would be served in the dish in which they were cooked, saving washing up, or that oven space is saved by using a microwave oven, or by choosing a dish which is cooked on the top of the stove. There are many possible practical reasons for choice but all of them should be related to the work to be carried out on the day of the test. Candidates were asked to comment on the nutritional value of the dish chosen in part (b) of the question paper. Some answers were excellent but others were too vague. At A Level precise information is expected.

Examples of statements which were credited are: "milk contains HBV protein which is important for growth", or, "lemons are a good source of vitamin C which aids the absorption of iron". Nutrients must be linked to both the ingredients in which they are found and the function of the nutrients. It is not acceptable to state that the dish contains a particular nutrient or that a named ingredient contains vitamins and minerals. If a nutrient, for example HBV protein, is found in more than one ingredient, credit will be given if another function for the nutrient is given. No credit was given for stating that a dish was 'healthy'.

Comments on individual questions

Question 1

This question was the least popular, but those who attempted it usually chose an appropriate range of dishes to show the use of different raising agents and different skills. Candidates were not always sure of the raising agents used in their chosen dishes. A dish using yeast was often chosen, and the range of dishes using air was wide. Some candidates chose dishes using puff pastry while others included whisked sponge or roulade. Choux pastry was popular, showing how steam can raise a mixture, and there were many dishes prepared which used baking powder or self-raising flour. It was rare to find a candidate using bicarbonate of soda to make, for example, gingerbread.

Written answers were satisfactory but usually lacked detail. Candidates were able to list raising agents and note that gases expand on heating. The conditions required for fermentation were well known. The rules for using raising agents were not well explained suggesting that candidates are not able to apply their knowledge competently. It was hoped that it would be noted that accurate measurement of chemical raising agents is essential and that sieving is necessary to ensure even distribution. The importance of suitable conditions for the fermentation of yeast was usually stated, as were the results of temperatures which were too high or too low. There were many other rules, and credit was given for all appropriate information.

Question 2

Many candidates chose to answer this question but many of them made a poor choice of dishes. It was expected that each dish chosen would illustrate the use of different ingredients for colour and flavouring but there was much repetition. Some candidates chose to use fruit or vegetables in each dish, while others used herbs but did not identify which herbs. There were many possibilities so the choices made were a little disappointing. The range of skills chosen was generally good, as in all of the tests.

The written part of the paper was not well answered. Answers were often lacking in detail. Candidates were asked to identify locally available ingredients so could not be credited for mentioning fruit, vegetables, herbs and spices without naming specific examples. Other ingredients which affect the colour and flavour of dishes, but were seldom identified, include sugar, eggs, cheese and a wide range of artificial colourings and flavourings. The next part of the written answer which asked candidates to explain how colour and flavour are changed when dishes are cooked was not well done. It was expected that explanations, illustrated by examples, would have been given on dextrinisation, caramelisation and Maillard browning, together with descriptions of the changes which take place when meat is roasted and different foods are fried. A few candidates discussed the effect on the colour of vegetables of boiling for a short time compared with overcooking but, on the whole, answers were too brief and lacked information.

Question 3

This was the most popular question and was answered well by the majority of those who chose it. Most candidates chose skilful dishes which demonstrated different uses of eggs, although in a number of instances no indication was given of the use of eggs being illustrated. The most frequent uses identified were for trapping air, lightening, thickening and glazing, although several candidates showed the use of eggs as an emulsifying agent or as a main dish. A few candidates gave the incorrect use of eggs in a particular dish but choices were generally good and the use of eggs justified.

The written answers were usually well presented and included adequate detail. Storage advice for eggs was sound, many candidates scoring full marks for this part of the question. The nutritive value of eggs was less well known. Carbohydrate was often listed as one of the nutrients in eggs. It was expected that the advantages of eggs would have related to their low cost, availability, ease of digestion unless overcooked and their quick cooking. Many answers emphasised nutritional information, although this had been covered by the previous part of the question. The disadvantages of eggs were usually related to the fact that the yolk contains saturated fat which is associated with cholesterol. The link was then made with coronary heart disease.

Careful choice was required to ensure that the dish chosen in (b) showed a different skill. Cheesecakes and cold desserts were often chosen because they could be made in advance and served cold. Choux pastry dishes which included liver or chocolate were also popular choices. Occasionally, candidates chose dishes in (b) which did not include ingredients rich in iron. Many lists of ingredients included 'meat' as the ingredient rich in iron. This could not be credited since not all types of meat are good sources of iron. Red meat would have been acceptable, as would beef. Candidates are expected to be precise in their descriptions of ingredients. This not only demonstrates their knowledge but also assists the person who is responsible for ordering ingredients.

Paper 9336/03**Paper 3 – Unsupervised Work****General comments**

Most of the individual studies were well presented and were both interesting and informative. It was evident that candidates had spent a great deal of time on their chosen area of study. Some of the topics, however, did not lend themselves well to research of this type, either because the scope of the subject was too wide or because there was no opportunity for original research. Occasionally, parameters were not well defined but, for the most part, boundaries were clearly set. A few candidates failed to appreciate the limitations of their study, and were prepared to generalise their results. The poorest studies bore little relation to the title and conclusions were drawn which could not be justified. Candidates should be reminded that the title of the special study must be an accurate reflection of its content. It was most helpful when the framework set out in the mark scheme was followed. This is available to all Centres and should be used for guidance. It clearly sets out the mark allocation for each section and is intended to provide valuable information for candidates. In some instances, whole sections were omitted and so the marks available for that section were lost.

Comments on specific areas**Choice/Reasons for Choice**

All of the topics chosen were relevant to the syllabus but, as previously mentioned, parameters were not always clearly set. It is essential that the title is specific because this serves to highlight the limitations of the study. The study could, for example, be an investigation into the use of a particular local fish by families in a named locality. It would not be appropriate to entitle a study 'Fish', although broad areas of study were occasionally chosen. Sometimes the title was much too long, making it difficult to determine the focus of the research. It is important that candidates are encouraged to choose an area of study which enables them to use a variety of methods to collect data. It is essential that candidates give their reasons for choosing their area of study. Most included at least one reason for choice, better candidates gave several reasons for their choice of subject.

Planning

This section was sometimes omitted or was treated too superficially. Candidates must define the aims and objectives of their study. A list of questions to address could be formulated or a list of tasks drawn up. The objectives must be clear, so that it will be possible, when evaluating the study, to assess whether those objectives have been met. The objectives should be the operations which need to be carried out in order to satisfy the overall aim of the study. Candidates often listed the activities they planned and gave dates by which they intended to have completed each stage. This is commendable since it encourages candidates to give structure to their study. Occasionally, the amount of time estimated for a particular stage was unrealistic; this can be commented on in the *Evaluation* section, allowing contingencies to be discussed. Some candidates gave proposed, and actual times, for each stage, enabling them to give reasons for the success, or otherwise, of the proposed time allocations. Each method of data collection should be considered in detail. Generally, candidates fail to do this; they tend to list the methods proposed without giving any justification for their choice. At this stage a brief outline is sufficient; further details should be given in the *Methodology* section. When questionnaires are to be used, candidates should state how respondents are selected, and reasons should be given for choosing particular interviewees. This section should demonstrate that candidates have chosen methods of data collection which suit their study and that all of their planning is carried out logically. It was encouraging to note that the methods of data collection used in the majority of studies were well justified.

Theoretical Research

All studies included a section on theoretical research but the work included varied in amount and quality. It was the weakest section of many studies. Some candidates reproduced whole sections from publications without making any attempt to use their own words or even to summarise; others produced a few pages of information from basic textbooks. The purpose of this section is to give candidates the opportunity to research their topic widely before producing a chapter which contains selected information relevant to their study. It was discouraging to find that sometimes pages downloaded directly from the internet were included, as were photocopied newspaper articles. This is not acceptable since it is not the candidate's own work. Information will be gathered from these sources but it should be incorporated into text written by the candidate, who should acknowledge all sources of information within the text, in the bibliography or both. It is important to remember that written work should be of A Level standard; the information given should include adequate detail. This was not always so. Although there is no recommended length for this section it should be remembered that all investigative work is based on material which is already in the public domain. The research report should set the scene for the work which is to follow by giving the reader enough background information.

Investigative Methods

The most successful studies used a wide range of investigative methods. Many candidates used five or six methods of data collection. Visits were made to farms and factories, surveys were made of shops and markets, recipes were tested and evaluated and questionnaires were conducted. It is always useful to include photographs wherever possible since they add another dimension for the reader and add to the attractiveness of the study. They ensure that each study is unique. For each method of data collection used it was expected that candidates would explain how, when, where, why and with whom the investigations were to be carried out. A sample questionnaire was usually included but candidates rarely gave a list of the questions asked during interviews. One or two studies included every completed questionnaire; this is not necessary since they are not part of the study. It is the data collected which is important. Candidates should be reminded that questions must produce data which can be collated and that only questions relevant to the study should be included. Asking young people questions on family income can rarely be justified. It was a matter of some concern that some candidates stated that visits would be made to organisations or government departments and interviews carried out. There was no evidence in the study that this had been done. Occasionally it would be noted that in an interview with a (named) professional person certain questions would be asked. This could not be justified in many instances, since the information is freely available in textbooks. Interviews are valuable for gathering information but care should be taken not to waste the time of busy people. Candidates often included recipes in their study without any justification. Every aspect of the investigation should have a purpose and should be part of the original plan. Many marks are allocated to this section; those who merely list the methods planned will gain few marks. The highest marks were gained by candidates who were able to demonstrate detailed knowledge of each method they used.

Collation of Data Collected

This section is as important as the previous one since, as in the *Methodology* section, each method of data collection must be taken in turn and the information presented in an appropriate form. Candidates usually dealt with this section well and were able to demonstrate their skill at computer graphics, as well as other methods of data presentation which did not involve the use of a computer. The best studies showed several methods of presenting data although all studies showed a variety of methods, including bar charts, pie charts, line graphs, photographs and prose. Those who prepared dishes drew up charts which could be used for evaluating them or to draw comparisons. Most of the data was presented well but sometimes charts had neither a key nor a title. The data was usually presented separately from the conclusion.

Analysis/Conclusions/Recommendations

This section was often either omitted or dealt with too briefly. It is essential that the candidate presents an accurate summary of the evidence based on the collected data. It is expected that the evidence will be interpreted and conclusions drawn. All conclusions should be supported by reference to evidence from the data collected. It is inappropriate to state that '*the data show that...*' since all data must be interpreted. The conclusions drawn should lead the candidate to make recommendations for further action. They could be for implementation by individuals, families, organisations or governments. It does not matter that some of the recommendations may not be practical; their importance is that they are the result of careful consideration of evidence drawn from the study. Weak candidates made recommendations which had little connection with their study or suggested actions which are already well known, such as those based on following dietary guidelines.

Evaluations

This section was not well considered by many candidates. Many seemed to give little attention to it and wrote very briefly. Some candidates omitted the section altogether. It is important that reference is made to the original aims and objectives so that the success of the study can be considered. The value of the chosen methods of data collection should be noted; suggestions could be made for improving weak areas and the success of particular methods of investigations highlighted. Sometimes candidates mentioned problems they had encountered and described how they dealt with them. This was commendable since it is often considered that weaknesses should be overlooked. To acknowledge problems and to consider how to address them is important. Most candidates were able to identify ways in which undertaking the study had benefited them. Some mentioned that they developed confidence or became more organised in their work; others noted that they had become more proficient at computer graphics. Many candidates mentioned that they had enjoyed meeting people from other backgrounds. All observations were valid since they demonstrate that the process is as valuable as the outcome.

Presentation

The general appeal of the work was good. Acknowledgements, contents lists and bibliographies were included and most candidates included a diary of activities. The covers were generally very attractive; some candidates demonstrated their artistic talent. Occasionally there was more than one font used and the print size was not consistent. The overall impression is enhanced if there is uniformity. Candidates should be reminded that it is not necessary to have studies bound professionally, nor is it wise to mount each page on card. This makes the study more difficult to handle. It must be emphasised that the study forms part of the Advanced Level assessment in Food Studies so it must be the candidate's own work. Some candidates acknowledged the help of others in preparing illustrations and charts; this is unacceptable. Teachers should make every effort to monitor every stage of the investigation.