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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 very satisfactory. There were no rubric errors. Many of the scripts were of a high standard demonstrating both a sound knowledge of topics and an ability to select and explain appropriate material. Some candidates, however, failed to provide the depth of information required at A Level; answers often tended to be superficial and limited to a series of facts. Candidates did not always read the questions carefully, basing their answers on just a few words from the question. It is vital that before any answer is begun time is spent on thinking about the focus of the question and selecting appropriate information in response. Many answers gave no indication of planning. Mark allocations are intended to guide candidates on the expected length of an answer and the amount of time to be spent on each part of a question. Some candidates wrote at length on part questions worth a maximum of three or four marks. This is clearly inappropriate; much of that information would not have been relevant. It is a pity that candidates sometimes give all the information known on a topic instead of selected points. This wastes time, and does not address the question with precision.

Some candidates began each new question on a new page; this is not necessary. It is, however, helpful to rule a line across the page at the end of each question. Each question and part question should be clearly identified by number and letter and the questions answered must be listed on the front cover as requested in the instructions. Care must be taken to ensure that pages are assembled in the correct order and that each page bears the candidate's name and number, and the Centre number. It is the responsibility of each candidate to ensure that this is done. Pages should be fastened together securely but not too tightly. From time to time string is tied so tightly that pages are damaged when turned. This raises the possibility that pages could become detached and perhaps lost. It would be appreciated if candidates were reminded to tie string loosely but securely.

Comments on specific questions

Section A

Question 1

- (a) This was a popular question and those who chose to answer it gave good accounts of the classification of fats and oils. Answers generally included the composition of fats; better answers differentiated between simple and mixed triglycerides. Accounts were given of the differences between fats and oils, noting the compositions of saturated, monounsaturated and polyunsaturated lipids.

Many candidates gained full marks for this part of the question, demonstrating a sound understanding of the topic.

- (b)(i) This part of the question was less well answered, perhaps because candidates were required to select information and demonstrate their understanding rather than their ability to recall facts.

Many answers mentioned that fats melt over a range of temperatures because they are composed of a mixture of fatty acids with different melting points. This makes different fats useful for different purposes. Fats with a wide plastic range are suitable for creaming. Softer fats spread more readily and as temperature rises some triglycerides melt while others remain solid. It was often correctly noted that pressure changes the shape of fats and that this property is especially useful when rolling puff and flaky pastry.

- (ii) Rancidity was known to cause the development of unpleasant odours and flavours in fats. Some fats are resistant to oxidative rancidity because they contain fewer double bonds. Rancidity is prevented by the addition of antioxidants such as vitamins C and E during the manufacture of margarine, for example. They absorb oxygen, preventing the formation of free radicals. Butter is known to be susceptible to rancidity.
- (iii) Many of the discussions on smoke point lacked detail. It was expected that candidates would be able to state that smoke point is the temperature at which fat or oil decomposes because the temperature is too high. Fats and oils have different smoke points depending on their composition. The process is irreversible so it is important to use fats or oils with a high smoke point for deep frying to ensure that food can be cooked at a high enough temperature without the fat decomposing. Some candidates mentioned that a bitter taste and an acrid smell are characteristics of decomposition. A blue haze is an indication that the fat or oil is hot enough to decompose and that there is a possibility of the fat or oil igniting.
- (iv) It was generally known that fats containing mainly saturated fatty acids are hard, for example butter, suet and lard. Oils, such as olive oil and corn oil, are liquid containing mainly unsaturated fatty acids. They can be hardened during the hydrogenation process when hydrogen is added at the double bonds of the molecule. Different degrees of hardness can be achieved by controlling the amount of hydrogen taken up.
- (c) There were many excellent accounts of the digestion and absorption of fat. In questions of this type marks are only awarded when enzymes are accurately named and placed in a specific part of the alimentary tract and the breakdown products are precisely identified. Sadly, a number of candidates seemed to be unable to select only information on fats; they gave facts on the digestion and absorption of all nutrients. Obviously correct information on fats was credited but time was wasted when writing out other details of other nutrients.

Question 2

- (a) This question was a popular choice but most answers lacked sufficient detail. Part (a) of the question was worth sixteen marks so candidates should have realised that answers had to be factually accurate and supported by detailed explanations and examples where appropriate. For both calcium and iron, uses in the body should have been discussed in detail. It was well known that calcium is essential for the growth of strong bones and teeth but many candidates failed to mention that calcium works with phosphorus and that vitamin D assists its absorption. Other uses of calcium, for example blood clotting and the normal functioning of nerves and muscles, were often disregarded. It was usually noted that oxalic acid and phytic acid make calcium unavailable. Their sources were usually mentioned. Iron was known to be a constituent of haemoglobin and accurate accounts were usually given of how oxygen, transported in the blood to body cells, plays a part in cell respiration. It is therefore responsible for the release of energy from glucose. Oxalic acid and phytic acid interfere in the absorption of iron but vitamin C promotes its absorption. It was expected that candidates would explain the difference between haem and non-haem iron and also ferric and ferrous forms of iron. Information given was usually accurate but was too brief.
- (b) There were many good accounts of the results of an excess or a deficiency of both calcium and iron. Deficiency diseases were named and their symptoms identified. Many candidates gained full marks for this part of the question.
- (c) Locally available sources of calcium and iron were named. The most frequently named sources of iron included milk, cheese and yoghurt, green leafy vegetables and canned fish eaten with bones. Named sources of iron included eggs, green leafy vegetables, liver, kidney, red meat, wholemeal bread and cocoa. Again, many candidates gained full marks.

Question 3

- (a)(i) It was surprising that there were few accurate definitions of the term 'balanced diet'. Candidates who would have been scored for stating that a balanced diet contains all nutrients in sufficient amounts.
- (ii) There are a wide a range of situations which would prevent an individual from having a balanced diet; credit was given to every valid situation identified. Further information on each situation was expected since the question asked for a discussion on the situations mentioned. The following list is not exclusive but it includes a number of the situations, which could have been identified. Some people lack nutritional knowledge so do not understand the concept of a balanced diet, others are too poor to be able to access a range of foods. Food or food aid may not be available so a shortage of food naturally precludes the consumption of a balanced diet. Sometimes individuals lack cooking skills so nutrients may be lost from food during the preparation of meals; they may be ill and unable to choose or consume an appropriate combination of nutrients or because of their culture may be forbidden certain foods. Vegans may risk a deficiency in the nutrients found in meat unless their diet is carefully planned. Some people, particularly in the developed world may not have a balanced diet because of their over-consumption of fat, sugar and salt. This may be caused by the inclusion of large amounts of processed food, which is possibly linked to the influence of advertising. It can be seen that the scope of the question was very wide and afforded candidates a great opportunity to consider many possible reasons why individuals may not have a balanced diet.
- (b)(i) There were many good accounts of the reasons for limiting the intake of salt and sugar. Salt was known to be responsible for fluid retention, which could lead to hypertension. Headaches could be one of the consequences. An over-consumption of sugar was correctly linked to obesity, dental caries and coronary heart disease. Social and physical problems were often identified. These included a lack of self-esteem experienced by many overweight people, breathlessness, varicose veins, strokes and potential problems during surgery.
- (ii) Suggested ways to limit salt and sugar were general. It was often advised that herbs and spices could replace salt during cooking and that salt should not be added both during cooking and at the table. Many candidates advised against eating salted snacks such as peanuts and potato crisps. It was usually suggested that artificial sweeteners could be used instead of sugar in beverages and that the consumption of cakes, biscuits and sweets should be reduced. Many candidates gained full marks for this part of the question.
- (c) Most candidates were able to give informative accounts of the importance of Non-Starch Polysaccharide. It was well known that NSP absorbs water, making waste soft and bulky and easy to expel. Problems associated with a poor supply of NSP were discussed and most accounts included the facts that NSP absorbs toxins and lowers the level of cholesterol in the body. This part of the question was worth six marks so a substantial amount of detail was required in order to achieve a high score; many candidates were able to give the level of information expected.

Question 4

- (a) RDI, or Recommended Daily Intake, was not known to be the estimated intake of nutrients to achieve healthy living. Even though some nutrients are needed in very small amounts, they are essential for the efficient functioning of the human body. It is an estimated amount because each individual has a different RDI for each nutrient but it is a safe recommendation, which would cause no undesirable effects. It is difficult to be specific about individual nutrient and energy requirements because so many factors are influential. Some of those factors are age, gender, body size, state of health and level of activity.
- (b) Many candidates gave very general information on the nutrients required by all individuals in order to have a balanced diet. It was expected that candidates would select those nutrients, which would be particularly needed during pregnancy. Further information to explain the need for each nutrient identified would have been justified. Examples of appropriate information could have been that HBV protein is required for the growth of the foetus and the development of tissues in the mother, additional iron is important for the formation of haemoglobin in the baby who will need a supply of iron to last for the first six months; it will also prevent anaemia in the mother. Vitamin C is important for the absorption of iron and vitamin D for the absorption of calcium, essential for the building of strong bones and teeth. Other dietary needs of a pregnant woman would include vitamin A, folic acid and NSP. An increased energy supply would be required because energy is used for growth although a low fat diet would be easier to digest and would help to prevent excess weight gain. All valid points were credited.

- (c) Kwashiorkor was usually known to be a disease resulting from a lack of HBV protein. The additional information was given. It usually affects children who, after weaning, are given starchy foods because they are filling. This often coincides with the birth of the next baby. The lack of protein to form tissues so growth is retarded and muscles waste. They may suffer from anaemia because blood, being a protein, is not produced in the quantity and quality needed.

It was well known that children suffer from rickets if their diet is lacking in calcium phosphate. Milk is given in inadequate amounts so cartilage, which precedes bone, cannot be hardened. The weight of the child's body cannot be supported by the soft cartilage resulting in knock knees and bow legs. A vitamin D deficiency can contribute to rickets since a supply is needed for the absorption of iron. This can be remedied by the effect of sunshine on the skin; the body is able to produce its own vitamin D.

There were many well-considered suggestions for the prevention of both kwashiorkor and rickets. It was sometimes stated that birth control would help to ensure that a mother's health improved between pregnancies and that each child is breast-fed for a longer time. The need for education on infant feeding, with an emphasis on the importance of milk, was stressed. Some candidates suggested that subsidised dried milk products should be available and demonstrations on the correct mixing of baby milk carried out. There were many valid points and all were credited.

Section B

Question 5

- (a) Although it was well known that raising agents give a light texture to mixtures and contribute to the final shape of baked dishes, few candidates noted that raising agents can give a more attractive appearance and enable a greater of variety of structures to be created.
- (b) There were many excellent accounts of the changes which take place when a loaf of bread is made and baked. Candidates usually mentioned the conditions necessary for the fermentation of yeast and discussed the development of gluten. Better answers included the names and the effects of the enzymes which play a part in the process. Some of the changes which take place during baking were noted. These included the effect of heat on starch and sugar as well as the effect on yeast, carbon dioxide and ethanol. There were a large number of possible points to credit and many candidates gained full marks because their answers were detailed and precise.
- (c) It was disappointing that candidates were often unable to consider a wide range of uses of air as a raising agent. Most answers included information on how air is trapped during the preparation of flaky and puff pastry and usually described the creaming process during which air is incorporated. It was hoped that whisking, sieving and rubbing in would have been recognised as methods of incorporating air. Credit was given to named examples of dishes to illustrate the methods mentioned and to any information relating to the effect of heat on trapped air. Details given were generally accurate but most answers tended to be too brief. This part of the question carried almost one third of the marks for the whole question; this should have been a guide as to the amount of information required.
- (d) Few candidates were able to give more than one or two facts about self-raising flour. It was generally known that it is usually produced from soft, white flour and that it is often used for scones and rich cakes. It was expected that candidates would be able to state that the baking powder added is composed of cream of tartar and bicarbonate of soda and that a filler substance is added to absorb moisture, preventing the other two substances from reacting in storage. It was rarely noted that the amount of carbon dioxide produced is fixed by law, removing the possibility of error when measuring separate substances.

Question 6

- (a) Most answers gave a range of reasons for the popularity of deep freezing. It was known to be a quick method of preservation, retaining the nutritive value, colour, flavour and appearance of the original food. Many candidates noted the wide range of commercially frozen food available which add variety to meals and save preparation time.

- (b) The scientific principles of freezing were not often explained well. Many candidates were unable to give an accurate temperature for either freezing or storing food in a deep freezer. It was expected to state that freezing makes water unavailable for bacterial growth and also that at low temperatures bacteria are dormant. Better answers included information on the formation of small ice crystals within cells which, unlike the large crystals formed when the freezing temperature is low enough, do not damage cell walls.
- (c) The importance of airtight and waterproof packaging was mentioned by many candidates but few were able to offer appropriate reasons. It was expected that the importance of avoiding the evaporation of liquid would be noted to prevent 'freezer burn', an irreversible change to the surface of food. Details were usually given on the information which should be included on food labels and suitable packaging materials were suggested.
- (d) There were many excellent accounts on thawing frozen chicken. Some suggested that the process should take place in the refrigerator; others noted that some microwave ovens have a setting for defrosting. It was a matter of some concern that a number of candidates recommended standing the chicken in running water or placing it in a bowl of hot water. It was well known that food should be thoroughly thawed before cooking so that the heat of the oven can begin to cook the food and not simply defrost any remaining ice, otherwise the temperature inside the chicken during cooking would be ideal for bacterial growth. This could result in food poisoning, often caused by Salmonella bacteria. Once thawed, food should not be refrozen. Few candidates were able to state that in order to kill bacteria during cooking a temperature of 70°C should be maintained for at least two minutes.

Most candidates were able to advise that left-over cooked chicken should be stored in the refrigerator but little additional information was given. It could have been suggested that the meat should be removed from the bones and cut into small pieces so that it would be more efficient for heat to penetrate when reheating. Again, it was expected that candidates would state a temperature which must be reached when re-heating foods to ensure that the food is safe to eat. Many candidates correctly noted that left-over food should be used within 24 hours, should not be re-heated more than once and should be consumed immediately after re-heating.

Question 7

- (a) Many candidates were able to name most of the nutrients in meat and could give at least one function of each of the nutrients identified. It was expected that at A Level individual vitamins of the B group would be identified by name. Often the individually named proteins found in meat were correctly listed. It should have been relatively easy to gain a good score for this part of the question since a great deal of relevant information could have been given simply by recalling factual knowledge.
- (b) This part of the question proved to be challenging for candidates; the mark allocation of twelve marks should have been enough to suggest that in order to score well a great deal of factual information needed to be included in the answer. When considering the factors which affect the tenderness of meat there are three obvious areas to discuss; the physical characteristics of meat, the methods of tenderising meat before cooking and the effect of the cooking process on the tenderness of meat. Few candidates gave sufficient attention to all three areas. It was often correctly stated that young animals have shorter, finer muscle fibres so their meat will be tender. Older animals not only have thicker, longer muscle fibres but also have connective tissue between the muscle fibres depending on the amount of muscle use there has been. The greater the amount of connective tissue the tougher the meat. There were many excellent accounts of the methods of tenderising meat before cooking and the preparations, which could be made to assist the tenderising process during cooking. The suggestions made included hanging the meat for several days after slaughter, marinating with acids such as wine or vinegar, using enzymes from papaya and pineapple to help to break down protein and pounding the meat. Cutting meat into smaller pieces to shorten muscle fibres was also mentioned. The choice of a suitable cooking method was usually considered; moist methods allow the conversion of insoluble collagen to soluble gelatine. The muscle fibres can then separate making the meat tender. Many candidates correctly noted that overcooking could toughen meat. The scores achieved for this part of the question were rather disappointing; although most of the information given was accurate, answers were not always supported by explanations. Better answers covered a range of factors, which affect tenderness and demonstrated a sound understanding of the topic.

- (c) There were many very good accounts of the changes which take place when meat is cooked. However, high scores could only be achieved by those who gave reasons for the changes. Answers should have included reference to the change in colour, to shrinkage, to the protein tenderisation and to the destruction of bacteria by heat. It was expected that the temperature at which protein coagulates would have been stated. There were many facts, which would have been credited, but unfortunately some answers were too brief.

Question 8

- (a) This part of the question was worth eight marks so a very detailed account of additives and their functions was expected. Many of the different types of additives were mentioned; flavourings, colourings and preservatives were the most frequently identified but many others were highlighted. Some candidates gave named examples of additives and credit was given for this. Often examples of foods in which specific additives were used were given, sometimes with supporting reasons. It was well known that some additives are natural and some are synthetic and that an E prefix has been given to those, which are permitted for use by the EU. There was a large body of information to draw on in order to produce a good account of additives and their uses. There were many competent answers.

Candidates were usually able to identify problems associated with the use of additives. Mention was usually made of the uncertain result of their long-term use and of the fact that some people have allergic reactions to specific additives. A less frequently mentioned problem was the fact that the names of additives may not be recognised unless identified by their E-number. Candidates also noted that it was difficult to avoid foods with additives.

- (b) There is a great deal of information, which must be shown on a food label. It was expected that candidates would identify each type of information and give a reason for its use on the label. Much of the information discussed related to the nutritional details shown on food labels; it is not compulsory to show this information although many food manufacturers choose to do so. It was expected that candidates would note that the name and weight of the products should be shown together with the name and address of the manufacturer. The ingredients must be listed in descending order and an expiry date is given. Storage, cooking and serving instructions are also given. A reason for each of the types of information identified should have been stated.

Some of the answers on the advantages of giving nutritional information were not explanations as requested; they were merely lists of the nutrients which are usually named on the nutrition panel. It was expected that candidates would be able to note that the information would help those on special diets; diabetics could monitor their sugar intake and those on low fat diets could check the fat content of food items. Comparisons could be made between products and the calorific value of a food could be used when following a calorie controlled diet. The presence of nutritional information on packaging can raise awareness amongst consumers, enabling them to make more informed choices.

- (c) There were many very good accounts of the reasons for packaging food before it is sold. It was usually mentioned that packaging protects food from bacteria because it prevents handling by shoppers and sellers, and avoids cross contamination between products. Packaged food is easier to transport and store and is usually tamperproof. Packaging can attract customers and may advertise brands, which may influence choice. In addition, it allows information to be printed for use by the consumer.

Paper 9336/02**Practical****General comments**

The quality of the written answers was generally good. Scripts were clearly set out and candidates seemed to have had sufficient time to complete all sections of the paper. Occasionally pages were assembled in the wrong order. Care needs to be taken with this; it is time-consuming for an Examiner to have to put pages in the correct order. Each of the carbonised sheets is numbered so there should be no difficulty in putting them in order. It is the responsibility of each candidate to check that this has been done correctly and that pages are fastened together securely. Each page should clearly indicate the candidate's name and number and the number of the test chosen.

Teachers who mark practical work are reminded that the mark scheme published by CIE must be followed accurately. Reference must be made to the list of dishes planned on Page 1 of the preparation sheets. If a dish lacks skill the maximum mark available for that dish must be reduced, the marks left over cannot be transferred to other dishes, consequently, the total mark for results will be less than the maximum possible mark. The maximum mark available for each dish, together with the mark awarded, must be clearly indicated on the individual mark sheet. Detailed comments must be written to justify each mark awarded. It is not satisfactory to use single words to describe results. Dishes must not be stated to be 'satisfactory' or 'good'. Reference should be made to colour, flavour and texture of dishes and perhaps the consistency if appropriate.

Any dish planned but not served must be given zero and the marks cannot be transferred to other dishes. Any dish prepared which is not on the original plan made under examination conditions cannot be awarded a mark. It is unlikely that all dishes prepared by a candidate will be worthy of full marks. Indeed, it is rare for any dish to be worth full marks so Examiners should not use the maximum mark without careful consideration. All of the work carried out in the preparation session is marked externally, this is clearly stated in the *Instructions to Centres* but occasionally local Examiners have made comments on choice.

Time plans were generally very good and gave clear instructions on methods, cooking times and temperatures, and, in most cases, the method of serving. Better plans gave details on garnishes and decorations. Most candidates listed an appropriate amount of work to be carried out in the half an hour preparation time before the start of the Practical Examination. Candidates should be reminded that they must not include any processes that are part of the preparation of dishes. Occasionally Examiners remarked that a candidate had planned inappropriate work for Preparation Time. Many time plans were much too detailed, giving precise information for every stage of preparation. This is not necessary and takes up too much time during the Preparation Session. It results in a plan, which is not useful during the Practical Examination, because the candidate finds it too complicated to follow. Some time plans were not realistic; methods were not broken down into stages and the whole method was written out as in a recipe. Again, this would not be useful in a Practical Examination because it would not indicate any work done while a dish was cooking. Sometimes there was insufficient time for cooling a dish before decorating, or a dish to be served cold was the final dish to be prepared. Many candidates listed too much work for the last half an hour of the test. This allowed no time for 'over-running' during the first two hours of the test and may result in some dishes not being properly cooked or served. Some candidates were unable to 'dove tail' their dishes and listed all stages of each dish, one after the other. It was expected that all plans would note that washing up would be done at least twice during the test and then a time for washing up would be included at the end of the test.

The section of the written work requiring candidates to give practical reasons for their choice was not generally well answered. 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. It is expected that perhaps candidates will mention that the ingredients for a dish are easily available or that the cost is not high. Sometimes it was noted that seasonal produce or garden produce would be used or that a dish can be cooked and served in the same dish. Other points could be that a dish is to be served cold and does not require the use of an oven or that the use of labour-saving equipment is demonstrated. There are numerous possible practical reasons why particular dishes are included in a Practical Test and every point made by a candidate was carefully considered. Candidates were asked to comment on the nutritional value of the dish chosen in part (b) of the question paper. Many answers, however, related to all dishes made. There were many excellent accounts but sadly there were also a number of vague responses. Precise information is required at Advanced Level. It is expected that candidates will note, for example, that egg contains fat which is a source of energy, or that HBV protein, which is important for growth, is obtained from milk. Nutrients must be linked to ingredients and to functions. It is not enough to state that the dish contains iron or that vitamins and minerals are found in a dish.

Comments on specific questions

Section A

Question 1

This question was a popular choice and those who attempted it usually chose an appropriate range of dishes to show the use of different fats and oils. Candidates were not always able to identify clearly the fat or oil used in the dish and sometimes the same one was used in more than one dish. It was not expected that oil would simply be referred to as vegetable oil; the exact source of the oil should have been named. There were many possible examples of fats and oils that could have been used yet the range chosen was very limited. Many candidates included cakes and pastries in their choice but few chose to show the use of oil for frying or for making mayonnaise. The range of skills included was generally good although a few candidates chose dishes that needed to be baked at different temperatures but at the same time, so experienced problems with oven management.

The written part of the paper was usually well answered. Candidates were able to name a range of different types of fats and oils available locally and could give sound advice on storage. The reasons for limiting the amount of fat and oil in the diet were well known and candidates were able to score good marks for this part of the paper.

Question 2

This question was chosen by a large number of candidates. Although most of them were able to plan and prepare dishes, which showed a range of different cooking methods, many were not able to highlight the methods they had chosen to illustrate. Sometimes the methods mentioned were not given the correct name; stewing and boiling were often incorrectly identified when relating to meat. It was expected that each dish chosen would involve a different cooking method so it was surprising to find methods repeated. Oven management should have been relatively easy because many methods of cooking do not require the use of an oven. Few examples of grilling or using a microwave oven were noted.

The written part of the paper was not well addressed. The question asks for explanations of the methods of heat transfer which have been included in the choice of dishes. Most candidates did not refer to their practical choice when discussing the transfer of heat; they discussed the topic in general terms. The explanations of conduction, convection and radiation often lacked basic detail so the marks scored were disappointing. The second part of the answer concerned ways of saving fuel when preparing family meals. Again, the accounts presented were often disappointing. It was expected that candidates would mention the use of steamers, pressure cookers and microwave ovens. It was usually noted that cooking several dishes in the oven at the same time could save fuel and that food should not be overcooked or cooked in excess. It was surprising that very few candidates recommended that lids should be used on pans or that flames on a gas stove should not be too high to avoid wasting heat around the base of the pan.

Question 3

This question was the least popular although it was answered by a number of candidates. It was expected that each dish chosen would contain a HBV protein ingredient easily identified from the list of dishes. This was often not the case. Some dishes contained only very small quantities of HBV protein. Although the question did not specify that each dish should contain a different HBV protein, most candidates included meat, fish, cheese, eggs, meat or soya. Occasionally, ingredients identified as being HBV protein foods were not. It would have been accurate to include two HBV protein foods in the same dish to provide HBV protein but no-one chose to do so. Many candidates gave too little detail about their ingredients. Recipes and shopping lists should not contain meat or fish; they should specify the type or cut of meat and the name of the fish required. It is expected that items such as minced beef, chicken breast and stewing steak are specified and not general terms like frozen fish. Some dishes lacked skill; it is always possible to include pastries, cakes and sauces to demonstrate skills.

The written part of the paper was usually well answered. Candidates were able to give a good account of the HBV protein foods available locally. It was surprising that few candidates chose to name and describe the types of vegetarian diet because each type of diet can include different HBV protein foods. Few candidates gave detailed information on anything other than soya and its products. Complementary proteins were rarely mentioned.

There were many disappointing choices of skilful dishes which are low in fat. It was hoped that a clear indication would be given of how the ingredients used in the dish would be considered to be important in a low fat dish. Many dishes included high quantities of fat; puff pastry, Genoese sponge and cakes decorated with double cream cannot be considered as good examples of suitable dishes. Most candidates chose to prepare a sweet dish. It was encouraging to note that many candidates indicated how they could reduce the amount of fat in their chosen recipe; they suggested reducing the amount of fat in sauces, using low fat cheese and low fat cream and changing the method of decorating a dish to remove any cream. Fruit was sometimes used to decorate cakes instead of a large amount of cream. Candidates should be encouraged to consider questions carefully and look for key words to help them when making choices. In this particular instance, 'low fat' seems to have been overlooked.

Paper 9336/03

Unsupervised Work

General comments

Most of the individual studies were well presented and were both interesting and informative. It was evident that most candidates had spent a great deal of time and effort on their work, although there were some which were little more than a project covering only a few pages. Some of the topics chosen did not lend themselves to investigative work; others were too broad in their scope because clearly defined parameters had not been set. However, most of the topics had clearly defined titles set within realistic boundaries. The poorest studies had titles which neither reflected the nature of the investigation nor showed little relationship with the results and conclusion. Candidates must be reminded that the title of the investigation must be an accurate reflection of its content.

It was most helpful when the framework set out in the syllabus was followed. This clearly identifies each section of the investigation and gives useful information on the criteria used to award marks under each heading. This is available to all Centres and should be used for guidance. The mark allocation for each section is clearly set out. Some candidates ignored whole sections so the marks available for that part of the investigation were lost.

Comments on specific areas

Choice/Reasons for Choice

In every case, the topic chosen was relevant to the syllabus but, as previously noted, parameters were always clearly defined. It is essential that the title indicates the limitations of the study; this can be illustrated by considering two titles, both of which were presented. "Do Teenagers have a Sufficient Supply of Calcium in their Diet?" and "An Investigation into the Amount of Calcium in the Packed Lunches of Students in Class X in ___ School". Some studies did not lend themselves to a range of investigative procedures. Candidates should be aware that their choice of topic and the methods of investigation undertaken would have a direct influence on the marks available to them. Candidates should be encouraged to choose a topic, which will allow them to demonstrate their ability to collect data in a variety of ways. Reasons for the choice of topic for investigation must always be addressed. Most candidates gave at least one reason, although better candidates gave several.

Planning

It is important that the aims and objectives of the study are clearly set out. The main aim is always to investigate the problem as set out 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 benchmarks against which the success of the investigation is judged. Sometimes objectives were set out in such a way that they could not be made into operations to carry out. Many candidates listed their proposed activities and suggested dates when they could be carried out; often actual dates were added later. This is an interesting approach since it shows the importance of thorough planning and an appreciation of the amount of time which needs to be allocated to certain procedures. When evaluating the investigation it is useful to highlight areas which took less or more time than expected. It allows contingencies to be discussed, making for an interesting investigation. Candidates often comment that analysing data is a long, tedious process; sometimes the time estimated for this is too short. Each method of data collection should be considered in detail. Candidates should justify each method chosen. When questionnaires are used, candidates should indicate how respondents are selected and if interviews are to be conducted, it is important that the reason for selecting particular individuals is given. This section should be used by candidates to demonstrate that their planning is logical and that methods of data collection have been used which best suit their needs. In most studies the methods of data collection were justified well.

Theoretical Research

This was the weakest section of many studies. Sometimes it was too long because it contained every available piece of information on a topic. Occasionally pages were included which had been downloaded from web sites; while the Internet is an invaluable resource, any information gathered in this way should be incorporated into the report written by the candidate in his or her own words. It is usually obvious when text has been directly taken from textbooks because the writing style is different from that found in the rest of the investigation. If possible, a variety of sources of information should be used and these should be acknowledged in the bibliography. Web addresses should also be listed. All quotations, charts and diagrams should be acknowledged. It is important to remember that the work must be of A Level standard. Sometimes the bibliography lists books which lack depth of information and are normally used at lower levels of study.

Although there is no recommended length for this section of the investigation, 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 whatever is to follow.

Investigative Methods

The most successful studies used a wide range of methods to collect data. Many candidates used different methods. Possible methods are suggested in the syllabus and the Assessment Scheme in the range of marks available according to the number of methods chosen; those who choose only one or two methods limited the marks, which can be scored in this section. Some candidates visited factories and farms; others observed, carried out interviews and conducted questionnaires. Many candidates collected information from markets and shops and several set up tasting panels to assess the popularity of their cooked dishes. Photographs are particularly useful because they ensure that the study is unique; they add interest and enhance the overall attractiveness of the presentation. It was expected that for each investigation candidates would state how, where, when and with whom the investigations were carried out. Most candidates correctly included a blank copy of the questionnaire used but few included a list of questions used in their interviews. Copies of letters sent and received were usually included. It was often stated in the planning section that interviews would be conducted but in several studies there was no evidence that those interviews had taken place. It was a matter of some concern that candidates interviewed busy professionals to gather information, which is widely available in textbooks. There is no need to ask a doctor to list the symptoms of anaemia, for example. Candidates should be reminded that questions should only be asked which result in data which can be collated. Questionnaires rarely need to ask for information on family income or on any other area, which has no overall bearing on the topic being investigated.

This is an important section to which many marks are allocated. High marks can only be achieved by those candidates who can demonstrate a detailed knowledge of each of the methods of investigation used. Those who merely name the methods they plan to use can gain few marks.

Collation of Data Collected

This section is as important as the previous section since each of the methods of data collection must be taken in turn and the information presented. Candidates usually presented data well, demonstrating their skill at computer graphics as well as their ability at presenting data without the use of a computer. The best studies showed many different methods although most studies showed several different methods of presenting data. The range included line graphs, bar charts, pie charts, comparison charts, prose and photographs. Spreadsheets were used where appropriate. Most of the data was well presented although titles and keys were often omitted from charts. Data should always be presented separately from summaries and conclusions. Occasionally a collection of recipes was included for no obvious reason. Cooking dishes for evaluation and comparison is, however, to be commended. Many candidates presented their information in a wide range of different ways – sometimes as many different ways as their computer would allow! Again, there is nothing to be gained from this. It is better for the reader to have information presented in a consistent way.

Sometimes the value of prose was overlooked. It would be perfectly acceptable to state that 50% of a group preferred, for example, one dish. This is more straightforward than producing a pie chart with two differently shaded halves.

Analysis/Conclusions/Recommendations

This section was often either omitted or dealt with very briefly. It is essential that candidates present an accurate summary of the evidence based on the data collected. It is expected that evidence will be interpreted and conclusions drawn. It is inappropriate to state 'the data shows that' without giving supporting evidence. The conclusions drawn should lead candidates to make recommendations for further action. These recommendations could be for implementation by individuals, families, organisations or governments. They may or may not be practical but they should demonstrate the candidate's ability to develop solutions based on the evidence of his or her study. Weaker candidates listed recommendations that had only very tenuous links to the investigation.

Evaluations

This section was not well considered. Some candidates made no reference to their original objectives and so were not able to comment on the worth of their investigation. The success or failure of each of the methods of investigation used in the study should be assessed since this would provide valuable information for future investigations; suggestions could be made for improving weak areas. The time plan originally made could be considered and a more realistic time scale recommended. Sometimes candidates described problems they encountered and described how they had dealt with them. Most candidates were able to express some personal benefits of the study; some said that they had gained confidence, other became more proficient at using various computer software. Several stated that they had enjoyed meeting people from other backgrounds. All of these benefits are important.

Presentation

The general appeal of the work was good. The majority of candidates often demonstrated their artistic talent on the cover of their work. Contents lists, acknowledgements, bibliographies were usually included. The majority of candidates included a diary of activities. They are to be congratulated on the presentation of their work. Occasionally, there was more than one size of print or more than one font style was used. Care should be taken to ensure that there is uniformity throughout. Occasionally, candidates acknowledged the assistance of family and friends who helped with typing or illustrations. It should be remembered that the Investigation is part of the A Level Assessment in Food Studies. It should be the candidate's own work.