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FOOD SCIENCE

Paper 0635/01

Theory Paper

General comments

The overall standard of work this year was satisfactory. The paper differentiated well between candidates; there were several outstanding scripts and some which highlighted a lack of knowledge and understanding of the subject. Although there was evidence of factual learning, candidates were often unable to give explanations in support of their statements or to apply their knowledge. Candidates should be reminded that mark allocations and the space provided to answer questions are meant for guidance. Candidates should use this information to help them to decide on the amount of detail required in their answers. Unfortunately questions were not always read carefully so the answers given were not relevant. Key words, for example, name, describe, explain and discuss, should be noted. These words indicate the type of answers required. Attention must be drawn to the instructions on the front cover of the question paper. It is clearly stated that blue or black pen should be used and that no correction fluid should be used. Many candidates ignored this. There were few rubric errors.

Comments on specific questions

Section A

Question 1

- (a) Most candidates correctly stated that local foods are cheaper, fresher and usually have a higher nutritive value. They are also readily available.
- (b) The disadvantages of using imported foods are their cost and their poorer colour, flavour and nutritive value.

Question 2

Many candidates gained full marks for this question. There was, however, too much evidence of guesswork. The question was designed to test understanding of the processes described. Since possible answers were listed there should have been few problems.

Question 3

- (a) It was expected that candidates would be able to state that tough meat is characterised by long, coarse muscle fibres and a large amount of gristle or connective tissue. Any two of these points would have been enough to score full marks.
- (b)(i)(a) The question asked for ways of tenderising meat before cooking. Possible answers included hanging, beating, cutting into small pieces, mincing, marinating or using enzymes such as papain or bromalin.
- (b) Any moist methods of cooking meat were acceptable as being suitable for tenderising. Stewing, pressure cooking, braising and boiling were frequently mentioned.
- (ii) There were few good explanations of how meat becomes tender during cooking. Full marks would have been scored for stating that insoluble collagen is converted by moist heat into soluble gelatine. The meat fibres then separate.

Question 4

- (a) The majority of candidates scored full marks for this part of the question. They were able to name two citrus fruits, two berry fruits and two fruits with stones. The nutrients usually mentioned were vitamin A, vitamin C and fructose (or sugar). NSP and water were known to be found in fruit.
- (b)(i) Most candidates correctly stated that browning of fruit could be prevented by covering with water or sprinkling with lemon juice.
- (ii) Explanations were not well stated. Some noted that contact with the air would be removed; better answers mentioned the prevention of oxidation.

Question 5

- (a) It was encouraging to note that methods of processing milk were understood and could be identified.
- (b) Several possible reasons for processing milk were acceptable. Some noted that bacteria which cause souring would be destroyed and that milk would keep longer while others stated that the milk would be safer to consume.
- (c) The most frequently stated rules for the storage of milk were to keep it in a clean, covered container, in a cool place such as a refrigerator. New milk should not be mixed with old; it should be used in rotation - the oldest first. Milk readily absorbs smells from other foods so it should not be kept near cheese, fish or onions. Any four of these points would have ensured the maximum mark.

Question 6

- (a) Protein was known to be involved in the formation of enzymes.
- (b) Most candidates were able to state that iodine helps in the production of thyroxin.
- (c) Calcium, phosphorus and vitamin D are all involved in the prevention of rickets.
- (d) Vitamin A was known to be involved in the production of visual purple.

Question 7

- (a)(i) The type of flour suitable for shortcrust pastry is plain flour, soft flour or wholemeal flour. Air is the raising agent in shortcrust pastry; no chemical raising agent is needed. Soft flour has a low gluten content. Wholemeal flour contains NSP and is considered to be more nutritious.
- (ii) Margarine, butter or a mixture of margarine and lard or white vegetable fat could be used for making shortcrust pastry. Margarine and butter give colour and flavour; lard and white vegetable fat give shortness. A mixture of fats produces pastry which has all of those qualities.
- (b)(i) When mixing shortcrust pastry it is important to introduce as much air as possible, to keep everything cool and to avoid melting the fat. No further information was necessary.
- (ii) When rolling shortcrust pastry, short, light strokes in a forward direction should be used. Only a small amount of flour should be used to prevent sticking. The pastry should be handled lightly, avoiding stretching.
- (c) The cooking temperature could have been given in C, F or as a gas mark. No marks were scored if the temperature was not qualified by C or F.
- (d) Candidates usually gained full marks for naming dishes which could be made with shortcrust pastry. The most frequently named were apple pie, lemon meringue pie, curry puffs, sausage rolls and Cornish pasties.

Section B**Question 8**

- (a) Most candidates who chose to answer this question were able to mention some of the information found on food labels but were often unable to explain the reason for it. It was expected that the name of the product, its weight, its ingredients and its 'sell by' or 'use by' date would be mentioned. Additional information often included storing, cooking and serving instructions and the name and address of the manufacturer. Unfortunately, candidates limited their score because no attempt was made to give the purpose of the information.
- (b)(i) Vitamins A and D were correctly identified as retinol or axerophthol and calciferol.
- (ii) Most candidates were able to state that vitamin D can be produced by the action of sunlight on the skin. Better answers noted the action of ultra violet rays.
- (iii) It was not well known that RDI is an abbreviation for Recommended Daily Intake and is a guide to the amount of each nutrient required every day. Individual needs vary so the RDI is an average amount. Few candidates seemed to understand this.
- (c)(i) There were many sound explanations for vitamins A and D not being lost during moist methods of cooking. Full marks were given for stating that these vitamins are not soluble in water and are not affected by heat.
- (ii) Candidates usually went on to state that vitamins B and C are water soluble. This information was sufficient to score full marks.
- (d)(i) It was pleasing to note that functions of vitamins A and D were well known.
- (ii) Night blindness and rickets were usually correctly identified as the deficiency diseases associated with those vitamins.

Question 9

This question was not a popular choice and most of those who did attempt it seemed to have limited knowledge of food storage.

- (a) It was expected that candidates would be able to give two reasons for the importance of storing food correctly. It allows food to be kept longer, preventing waste; nutrients, flavour and texture are preserved and the risk of food poisoning is eliminated. Any two of these reasons would have ensured full marks.
- (b) Conditions suitable for storing flour were described well. The importance of a clean container with a tightly fitting lid was noted, as was the recommendation to choose a clean, dry place, away from strong smells. Appropriate reasons were often given; candidates were aware of the need to avoid providing conditions which favour the growth of micro-organisms since this leads to waste.
- (c)(i) Perishable foods were correctly identified as those which decay quickly.
- (ii) The majority of candidates were not able to explain why a refrigerator will not preserve foods. Bacteria will still multiply in the refrigerator but the process is slower; food will deteriorate so refrigeration must not be thought of as a method of preservation.
- (d)(i) It was well known that food should be covered to stop the surface drying and cracking.
- (ii) None of the candidates who attempted this question were able to explain why food should be cooled before it is placed in the refrigerator. Hot food will raise the temperature inside the refrigerator; bacteria will multiply more quickly in warmer conditions.
- (iii) It was well known that raw meat should be placed at the bottom of the refrigerator to prevent blood dripping onto other foods, contaminating them.

- (e)(i) The majority of candidates were unable to give reasons for the importance of defrosting meat before it is cooked. It was often suggested that the reason was to allow the meat to be cooked more quickly. A good answer would have stated that if the meat was still frozen when it was put into the oven, the heat of the oven would not cook the meat, it would only melt the ice. The temperature in the thickest part of the meat would not be high enough to destroy bacteria; it would be warm enough to encourage their growth. The other conditions for bacterial growth would also be provided - moisture, food and time. Bacteria would then spread to the rest of the meat, contaminating the cooked parts. A temperature of 70°C must be maintained for two minutes to make sure that bacteria are destroyed.
- (ii) This part of the question was attempted well. It was usually stated that meat must be thoroughly cooked to make it safe to eat since bacteria can cause food poisoning.
- (f) It was unfortunate that many candidates did not read the question carefully. General points on the purchase of foods, for example, meat, fish and vegetables were often given. The key words in the question were 'shopping to ensure that food is not contaminated'. It was expected that the personal hygiene of the shop assistants would be mentioned - clean hands, clean overall, hair covered, no licking of fingers and so on. Mention could have been made of using shops with a quick turnover of fresh food, where smoking is not allowed and where food is covered and not using shops where animals and insects are seen. The importance of observing the expiry date on food packages was usually correctly noted as was the advice to buy perishable food from shops which have cool storage areas. Reasons were expected for each point made; candidates often fail to support their statements so marks are forfeited.

Question 10

- (a) Methods of incorporating air into mixtures were well known and appropriate examples were usually given. Methods included rubbing in, creaming, beating, whisking, sieving, and rolling and folding.
- (b) Candidates were not able to name a dish using steam as a raising agent. Suitable examples were choux pastry or a named dish which uses choux pastry, Yorkshire puddings or toad-in-the-hole.
- (c)(i) Warmth, moisture, food and time were known to be the conditions required for yeast to multiply.
- (ii) Candidates correctly named the process as fermentation.
- (iii)(a) There were few who knew that too much salt slows down the rate of fermentation.
- (b) Most candidates correctly stated that yeast will be killed if boiling water is used for mixing the dough.
- (c) Not everyone was able to state that freezing the dough will prevent rising. Some noted correctly that yeast will not reproduce at freezing temperatures or that enzymes which are involved in fermentation are inactive at low temperatures.
- (iv) There were many possible answers to the question on the choice of flour for bread making. Credit was given to all relevant information. Strong flour with a high gluten content should be chosen; it holds its shape because gluten coagulates on heating. Wholemeal flour could be used since it adds colour and flavour and contains NSP. It is important that plain flour is used because the raising agent in bread is yeast; self-raising flour is unsuitable because it contains a chemical raising agent.
- (v) There were many excellent accounts of the changes which take place when a loaf of bread is baked. Candidates noted that browning occurs when the starch on the outside of the loaf dextrinises and that the shape of the loaf sets when gluten sets, because gluten is a protein. A crust forms when water on the outside evaporates. Carbon dioxide evolves during fermentation; it expands on heating and pushes up the dough giving an open texture to the loaf. The alcohol produced evaporates because it has a low boiling point. The heat of the oven eventually kills the yeast and rising stops.

Question 11

This was the least popular question in **Section B**. Those who chose it were able to give only limited information on the subject of kitchen planning and kitchen equipment.

- (a) Many candidates correctly noted that the amount of money available is an important consideration when planning a kitchen. Appropriate points were to have work surfaces on each side of the stove and the sink and to position the sink on an outside wall because that is most convenient for both water supply and drainage. Some candidates mentioned having a work triangle of sink, stove and refrigerator to limit the amount of time spent moving from one part of the kitchen to another. A few candidates noted that there should be adequate electric sockets to avoid having trailing flexes or using adapters. Some mentioned that there should not be any curtains near the stove; they could catch fire if there was a draught.
- (b) There were many excellent lists of causes of accidents in the kitchen. They included slipping on water on the floor, not using oven gloves to handle hot dishes, pan handles being knocked because they were not turned towards the stove and touching electrical equipment with wet hands. Others warned of the danger of not constantly supervising deep frying, of using blunt knives which often slip during cutting and being careless when handling sharp knives or blades from a food processor. Many accounts scored full marks.
- (c)(i) It was expected that candidates would mention that good lighting can prevent accidents by allowing workers to see clearly what they are doing. It also helps to avoid dark corners which can harbour dirt and insects. Some mentioned that a bright, well-lit area is a more pleasant place in which to work.
- (ii) Although answers lacked detail, important points were made. It was noted that ventilation makes an area more comfortable and less tiring because it extracts heat. If a room is too warm food spoilage is accelerated because micro-organisms multiply more quickly and enzymes work at a faster rate. Ventilation removes smells which cling to surfaces and clothing and spread to the rest of the house. An extractor fan helps to remove grease and keeps the kitchen cleaner and a constant supply of fresh air making working conditions more pleasant.
- (d)(i) Although most candidates made a few points about choosing saucepans, answers generally lacked detail. It was expected that reference would be made to the need for a flat base to allow good contact with the hotplate. A thick, heavy base conducts heat well so is more efficient. A poor conductor of heat, for example wood or plastic, should be used for pan handles to prevent burnt hands. Glass was often recommended because it allows the contents of the saucepan to be seen during cooking. Many candidates suggested that pans with a non-stick surface should be chosen because not only are they easier to clean but food can be cooked without the use of fat.
- (ii) It was often suggested that a range of knives should be chosen for different purposes. Stainless steel blades are best because they are not affected by acids and will not rust. It is important that knives are sharp; they can be used more efficiently and are less likely to cause accidents. The blade should be firmly fixed into the handle so that pressure can be applied without the risk of the blade coming loose. The knife should have a good grip and be comfortable to hold.

Question 12

Candidates were asked to discuss how money, time, energy and fuel could be saved when preparing family meals. High marks could only be scored by those who considered each of these factors. All relevant points were credited. Some candidates suggested using cheaper cuts of meat since these can be tenderised by moist cooking. Others recommended using soya or pulses; milk, cheese and eggs are cheaper sources of HBV protein. Popular suggestions were to use foods in season and either buy from local markets or grow a supply at home. Special offers could be bought, money saving coupons could be used and perishable food bought on their expiry date at a reduced cost as long as they could be used on the same day. Buying in bulk is cheaper but there must be sufficient storage space in the kitchen or in a freezer. It is false economy to buy food and not use it.

There were many valid suggestions of ways to save time when preparing family meals. Most candidates mentioned the use of microwave ovens, pressure cookers and electrical equipment such as food mixers, blenders and processors. Batch baking was recommended. Dishes are made in large quantities; some are served and the rest are frozen for a later date. Meals can be prepared more quickly in the future by defrosting the frozen items. Sometimes food can be partially prepared before it is bought. Examples are minced meat, fish fillets and all types of convenience foods.

Energy (or effort) can be saved in many ways and candidates usually offered several suggestions. These included using electrical equipment for creaming, chopping and whisking instead of carrying out these tasks by hand. Using the same dish to cook and serve the meal saves washing up and using very hot water for dish washing may mean that dishes dry immediately without being wiped dry. Non-stick pans are easier to wash. Convenience foods save the effort of preparation, although it should be remembered that some vegetables, potatoes for example, may only need to be scrubbed thoroughly, a more effortless task than peeling.

There were many very good accounts of ways to save fuel when preparing meals. It was well known that fan ovens have an even temperature throughout so several dishes which require the same temperature can be cooked at the same time. The zones of heat in a gas oven can be used to cook dishes which need slightly different temperatures. Most candidates suggested that a steamer can cook different items in each tier while using only one burner. Other suggestions were to ensure that flames did not spread beyond the bottom of the pan and that the base of the pan is the same size as the hotplate. The use of pan lids was recommended as was the cooking of more than one vegetable in a pan at the same time. Some advised that an oven should only be preheated for ten minutes; others advised that the oven should be switched off a few minutes before the end of cooking time in order to make use of residual heat. There were many other possible points and credit was given to all valid suggestions.

Question 13

Candidates were usually able to suggest a range of reasons for following a vegetarian diet. They included religious and moral reasons, the fact that it is more economical to grow crops on land than to keep animals and that some people think that a vegetarian diet is healthier. Animal fat is saturated and contains cholesterol which is associated with coronary heart disease. The question referred to different types of vegetarian diet so it was expected that some of those would be defined. Most candidates mentioned vegan, lacto-vegetarian and ovo-lacto-vegetarian diets and were usually able to state the differences. Since the rest of the question was related to the provision of a balanced diet, it was expected that nutrients would be considered in turn and a discussion would follow on how each nutrient would be provided in different types of vegetarian diet. The majority of candidates gave most information on the provision of HBV protein. While this is important, there were many other nutrients to consider. Credit was given to named examples of foods containing each named nutrient so only those who had a sound knowledge of nutrition gained high marks.

Question 14

This was the most popular question in **Section C** and there were many very good answers. The chemical composition of fats was noted and descriptions of the structure of saturated, monounsaturated and polyunsaturated fats were given. Examples of each type were usually given. Sometimes information was presented by diagram. The functions of fats were well known. The digestion of fats was either explained perfectly or very badly, suggesting that candidates had either learnt the topic very well or not at all. It was expected that any discussion on the need to limit intake of fat would focus on obesity and coronary heart disease. Most accounts were very sound, indicating depth of knowledge on the topic. The final part of the question related to ways of reducing fat in the diet. There were many good suggestions. The most common were to avoid frying, to reduce the amount of red meat, cheese and butter in the diet, to eat less cakes and biscuits and to choose low fat products, for example yoghurt and cream, whenever possible. It was surprising that a number of candidates suggested that fat could be reduced by using margarine instead of butter.

<p>Paper 0635/02 Coursework</p>

General comments

There were many very good pieces of Coursework; all of them demonstrated sound application of knowledge. The Coursework component differentiated well between candidates. Teachers usually gave very helpful comments on the individual mark sheets, justifying the mark awarded in each section. In some cases, however, no justification was given. Occasionally Teachers noted that candidates had not taken advice or had not followed guidelines on time allocation. Comments of this nature are very useful because they add further justification to marks awarded by the Teacher. Although each candidate is responsible for his or her own Coursework, it is important that the guidelines set out in the Distance Learning Manual are available to everyone. This is a valuable document because it clearly identifies the mark allocation for each section and gives an indication of the appropriate content of each area. Teachers and Moderators find it easier to assess Coursework if it is set out in sections. The heading of each section should be clear.

Folders, for the most part, were attractive indicating that a great deal of time and thought had gone into the presentation of the work. Candidates, however, should be reminded that their report should not normally be in excess of eight sides, exclusive of charts and diagrams. Some reports were presented in thick folders, some were professionally bound while others were presented as a collection of loose sheets stapled together at one corner. Obviously a compromise has to be reached. Heavy or bulky folders are expensive to post to the UK. This is in addition to the cost of purchasing the folders. The inclusion of photographs greatly enhanced many of the studies. Some candidates chose to word process their work; others wrote by hand. Both are acceptable but in each case, care is needed. Handwriting should be neat and free from crossings out and correction fluid. A ruler should be used for underlining all headings and sub-headings. A few candidates used a combination of handwriting and word processing: this should be discouraged since the overall effect is disappointing. Occasionally web pages were included. Obviously many candidates use the Internet in their research but it is important that the information obtained is incorporated into accounts written in the candidate's own words. Similarly, newspaper articles were sometimes included without justification. These can, of course, be used as long as they are acknowledged in the account and in the bibliography.

Comments on specific questions

Introduction

Introductions were usually good, clearly identifying the topic to be investigated. Reasons were generally given to justify choice. It is essential that the aims of the investigation are clearly set out otherwise it is impossible to gauge its success. It was helpful when candidates discussed the methods they planned to use when carrying out their investigation. The most successful investigations gave reasons for each of the methods. Sometimes a plan of action was added. This is valuable because it encourages candidates to adopt a logical approach to their work.

Investigation

Each study correctly included a clear statement of what was to be carried out. Sometimes a time schedule was included. This was useful in the later stages of the investigation because it allowed candidates to comment on the feasibility of their original plan. Problems could be identified and changes could be made with justification. This demonstrated the candidate's ability to adapt their plan when circumstances changed.

Most candidates correctly included a list of the questions used in interviews. Many included every completed questionnaire. This is not necessary: a blank copy of the questionnaire should be included in the Appendix for reference.

Summary of Findings/Conclusion

This was the weakest section of many of the investigations. Candidates were generally very good at producing evidence of the data collected; bar charts, graphs, percentage charts and prose were usually included. However, there was often little attempt to analyse the data. Sometimes the data was not relevant to the investigation; sometimes the results could not be used to support the original focus of the investigation. There were, however, many examples of very thorough analysis of results leading to well justified conclusions.

Evaluation

It is suggested that this section should be about eight pages long although this figure is merely a guide. A few extra pages are acceptable if the quality of a candidate's work would be compromised. These pages should include:

- letters, copies of questionnaires, interview schedules, surveys
- data presented in lists, charts or tables
- acknowledgements and bibliography.

It is essential that candidates draw their own conclusions from the data they have collected. Many seem to be too unwilling to express their own opinions. They should be encouraged to develop this skill since it allows them to apply their knowledge and to reflect on the work they have carried out. Each study is the work of one individual so impressions and opinions are important features. All of the studies were appropriate to the syllabus and for the level of examination. Sometimes candidates chose topics on which there is little published information; the result was a very subjective study. Occasionally topics were chosen which were too wide in their scope. It would be impossible to study, for example, the iron content of packed lunches eaten by 15 year old girls. It would, on the other hand, be possible to calculate the iron content of the packed lunch of five 15 year old girls from Class 11A in a particular school. Studies which are too wide in their scope and unrepresentative but candidates are still tempted to use their results to generalise. All studies, by their very nature, are limited so this should be reflected in the title.

Usually the questions used in interviews were appropriate but sometimes the questions in questionnaires were neither well thought out or relevant. It is often unnecessary to ask the respondent's age and sex because the study is probably limited to a particular section of the population. There was little evidence that pilot studies had been conducted; ambiguous questions would have been modified following piloting.

Often the questions led to YES/NO responses. These are not very useful since they do not allow results to be analysed. The most interesting studies included observations and anecdotes; they make interesting reading and ensure that each study is unique.

The presentation of information in a variety of ways also adds interest and demonstrates a candidate's skill. The method of presenting the data should, however, be appropriate. There is little to be gained from drawing a pie chart to show YES/NO answers to a question when the information could easily be given in a sentence. Occasionally graphs and charts were untitled and no reference was made to them in the text so it was difficult to estimate their relevance. It is always better to insert graphics into text at an appropriate place for maximum effect. Although the majority of candidates word processed their reports and used computer graphics to display their data, it must be stressed that using a computer will not automatically gain marks. Many competent studies were presented in the candidate's own handwriting and were enhanced by excellent hand-drawn graphs and charts. Some candidates used a variety of fonts and print sizes within their study; this is a distraction. The same style throughout produces a more pleasing effect.

Occasionally candidates drew conclusions from their work for which there was no evidence. Reference must be made to the data in support of any conclusions drawn. The most successful studies were those which guided the reader through the data towards a conclusion.

Candidates who analysed diets in order to calculate the intake of a particular nutrient were not always successful because they did not ask respondents to weigh and measure foods. This made any calculations invalid although the plan to analyse food intake was sound. Food diaries should give enough space for a description of each food. Meat, for example, could be beef or chicken; each has a different nutritive value. Similarly milk should be qualified. Is it skimmed milk, full cream milk, soya milk or some other type? The use of food tables was noted and this was encouraging because candidates usually related the intake of a particular nutrient to RDIs. Conclusions were expressed well.

Evaluations were satisfactory. It is always interesting to find out how candidates themselves have benefited from their investigation. Some commented that they had gained confidence, others had become more proficient on the computer and a few stated that they had become better time managers. In the evaluation section reference should be made to:

- the quality of work, its relevance, clarity and accuracy
- aspects of the study which have been successful or less successful
- problems which arose and how they were solved
- the usefulness of the findings
- ways in which the study could have been changed, improved or further developed.

The studies were well presented. Many had covers which had been designed and illustrated by the candidate. It was apparent that a great deal of time and effort had been given to the investigations and candidates are to be congratulated on their work.

Paper 0635/03
Alternative to Coursework

General comments

The overall standard of work was satisfactory. Some candidates found it difficult to answer questions based on an investigation which seems to suggest that their experience of this type of work is limited. Candidates produced clear evidence of factual knowledge but explanations were often omitted. Candidates should be reminded that mark allocations and the amount of space provided for answers are an indication of the time and detail required. Despite the instruction that blue or black pen should be used for answering questions, one or two papers were completed in pencil. Correction fluid was sometimes used despite the instruction on the front page of the answer booklet.

Comments on specific questions

Question 1

- (a) Most candidates were able to state that 32 apples were eaten during the week.
- (b)(i) Candidates were usually able to state the average number of serving of fruit per person for the week but did not always show how the average was calculated.
- (ii) The bar graphs were neatly produced but did not always have a title. Sometimes the axes were not labelled. Candidates generally chose a scale to suit the amount of space available.
- (iii) Comments on quality and usefulness often referred to the appropriateness of the scale chosen, the accuracy of colouring or shading and the clarity of the graph. Many candidates commented that information could be found quickly and that comparisons could easily be made.
- (iv) The information could have been presented as prose, as a line graph, a pie chart or as a list of percentages. Most candidates were able to state two of these.
- (v) Several reasons were suggested for the variation in the number of serving of each fruit. Credit was given to those who mentioned that some fruits are grown locally and are readily available at a low cost whereas imported fruit is expensive. People have different tastes and are often put off if a fruit is not easy to prepare or eat. Other candidates noted that some fruits are easy to carry and easy to eat. It was sometimes correctly mentioned that some families do not buy fresh fruit regularly.
- (vi) It was expected that the nutritional value of fruit would be discussed. Credit was given for noting named nutrients, stating a source and giving a function. Oranges, for example, are a good source of vitamin C which is important for the absorption of iron. Vitamin A and sugar were usually noted. The importance of fruit as a source of water and non-starch polysaccharide was acknowledged by most candidates. It was usually mentioned that fruit adds colour, flavour and texture to meals.
- (b) It was disappointing that candidates were not able to give good advice on the choice of fruit. The importance of ensuring that fruits were without bruises or blemishes was noted as was the advice to avoid buying in large quantities to avoid waste. However few candidates mentioned that fruits are cheaper and of the best quality if bought in season and that bright colours are usually a sign of freshness.
- (c)(i) There were many good accounts of the reasons for preserving fruit. Appropriate examples were given to illustrate the reasons given. Most candidates noted that waste can be avoided by making use of seasonal fruit for jam-making and that pickles give variety to meals. Money can be saved by preserving fruit when there is a glut for use when it is scarce and expensive. Preserved fruit can provide a store of food for emergencies.
- (ii) Pectin was known to be important in jam-making but few candidates were able to state that pectin is responsible for the setting of jam because it forms a gel in water. It must have an acid medium in which to work.

- (b) It was disappointing that few candidates were able to explain the importance of low temperatures when preserving fruit. Better answers noted that enzymes work more slowly at low temperatures and that micro-organisms are dormant at freezing point. No-one noted that quick freezing is essential so that small ice crystals form within the cell walls; slower freezing produces large jagged crystals which damage cell walls. This spoils the structure of fruit when it thaws and allows liquid to escape from the cells. It is best if fruit is frozen in small amounts to ensure that the centre of the pack reaches -25 C within 30 minutes.

Question 2

- (a)(i) It was well known that sugar can cause obesity, dental decay and diabetes and can increase the risk of coronary heart disease.
- (ii) Too much fat in the diet can also lead to obesity, high levels of cholesterol, coronary heart disease and hypertension. Obesity can, in turn, be responsible for breathlessness and lethargy. Most candidates gained full marks for their answers to this part of the question.
- (iii) Candidates knew of the importance of reducing salt intake because salt can be responsible for fluid retention, hypertension and an increased risk of coronary heart disease.
- (b) Answers to this part of the question were disappointing. It was hoped that suggestions would include avoiding frying, cutting visible fat from meat, choosing poultry and fish instead of red meat, using skimmed milk and reduced fat cheese and yoghurt and adapting recipes to reduce the proportion of fat in cakes and pastries. Credit was given to all valid suggestions.
- (c)(i) Few candidates were able to state that cholesterol is a fat-like substance found in all animal tissue, especially animal fats such as butter, egg yolk, cheese and cream.
- (ii) The problems associated with cholesterol were discussed well. It was well known that it is deposited in artery walls, narrowing them. Sometimes the artery blocks causing a heart attack. High levels of cholesterol in blood are linked to coronary heart disease because the chance of a blood clot forming is increased.
- (d)(i) There were many very good accounts of the importance of water in a healthy diet. Answers usually included information on the maintenance of body temperature, the transport of nutrients and waste, the need for water for body secretions, body fluids and mucous membranes and its importance for the protoplasm in every cell in the body.
- (ii) Most candidates correctly stated that dehydration results if the body lacks water.
- (e)(i) Candidates generally experienced difficulty when explaining how an individual's daily intake of water could be investigated to assess its adequacy. A good answer would have noted that the individual must be asked to record fluid intake for one day. The amount must be accurately measured and should include drinks, soup and fruit. The daily intake can be calculated from the information given and can be checked against the recommended daily amount for the individual's age. The chart should show times of day and volume of fluid.
- (ii) Most candidates correctly explained that an individual's daily water requirement is affected by illness since water is lost in sweating and vomiting, and by climate since perspiration helps to cool the body. Larger body sizes need more water because the greater surface area needs more water for cooling. Lactating mothers need water to produce milk.

Question 3

- (a)(i) Candidates were usually able to mention a few different types of flour. Wholemeal, wheatgerm and self-raising flour were suggested; brown flour was accepted.
- (ii) All types of fat were accepted, for example butter, hard margarine, soft margarine and low fat spread. Lard and cooking oil were not credited since neither is suitable.
- (iii) Many types of sugar were suggested and most were acceptable. They included caster sugar, granulated sugar, soft brown sugar, icing sugar and demerara sugar.

- (b)(i)** Many candidates were unable to offer suggestions for ensuring a fair comparison when making cakes using different ingredients. It was expected that the importance of using the same scales, identical ingredients apart from the one being varied, the same method of preparing by the same person using identical equipment would be mentioned. In addition, the same oven temperature, oven position and cooking time should be ensured. The same number of small cakes should be made from each batch of mixture.
- (ii)** It was clearly stated at the beginning of the question that small cakes were to be made by the creaming method. Several candidates, however, chose to describe other methods of cake making so were unable to score any marks for this part of the question. Many excellent accounts of making and baking cakes using the creaming method were described and candidates were rewarded with high scores. The importance of reading questions carefully cannot be overstated.
- (c)(i)** There were many good descriptions of the organisation of a tasting panel. The need to isolate participants, to code samples of food and to present each sample in the same way were well explained. The need for water to cleanse the palate between samples was usually noted as was the importance of giving out a response sheet with clear instructions for recording scores.
- (ii)** It was expected that candidates would choose qualities such as appearance, colour, texture, flavour, lightness, openness of texture and mouth feel.
- (iii)** Some candidates found it difficult to draw up a chart which could be used for recording scores. Full marks would have been gained for including instructions for using the chart, a list of qualities on one axis and a coded list of samples (A B C) on the other axis. Credit was given if the chart was easy to use and the amount of space for responses was appropriate.
- (iv)** There were many suggested factors which might influence the choice of fat for cakes. They included availability, cost, flavour, ease of creaming, whether a vegetarian product was required, and whether unsaturated fat with a low cholesterol content was available for those following a more healthy diet. All of these were credited.

<p>Paper 0635/04</p>

<p>Practical Test</p>

General comments

Candidates generally attempted all sections of the examination paper. The work presented was neat and legible and usually of a reasonable length. Many Centres arranged the work of their candidates in the correct order. It would be helpful if all Centres would ensure that the work is arranged correctly, labelled clearly with the number of the chosen assignment and that the work is fastened together securely. The original Examiners mark sheet should be attached to the front of the work of each candidate. Many of the mark sheets for recording the work of individual candidates were sent as photocopies. When this occurs the lightly shaded areas become dark which makes these sheets impossible to use for the recording of marks and comments. Contrary to instructions some Examiners at the Centres marked the time plan and evaluation sections in red. These sections should not be marked by the Centre. Some Centres enclosed photographs of the finished results of their candidates, this was very helpful to verify the marks awarded in the results section.

In the section on dishes chosen candidates need to take care that they are choosing dishes which will fulfil the assignment appropriately. These dishes need to be varied, skilful, attractive and sufficient to occupy all of the time allowed for cooking. All of the washing up and serving should be completed within the time limit. Dishes should always be named clearly and a detailed and complete list of amounts and types of ingredients should be written alongside the dish. A good variety of ingredients should be used and they should be described correctly, for example, 'mixed vegetables' does not explain clearly what is being used. If the dishes are to form a meal it would be helpful if these were arranged in the order of the meal. Skills and processes should be as varied as possible within the candidate's capabilities. A series of low skill dishes, usually those which are quick and easy to complete e.g. salads, cannot score as highly as those dishes which need more time and effort e.g. pastries. Candidates should not be choosing dishes for the examination which they have never made before. Dishes which are familiar to the candidates would be the most sensible choice. In new dishes the process and serving would be unfamiliar and would add to the stress of the situation. This does not enable candidates to give of their best.

The time plan should include a sensible sequence of work for the practical examination with methods, cooking times and temperatures for each dish. Methods do not need to be written out in detail, but the Examiner should be able to see clearly what work the candidate will be doing at each stage, including washing up. A list of times and dishes to be made is not sufficient detail. Candidates should be able to sequence their work so that while some dishes are cooking, other dishes could be prepared. Time should not be wasted simply waiting for dishes to cook and it should not be expected that dishes are put to cook and are instantly ready. Time should be allowed for serving the dishes and a final clearing up. Shopping lists need to show total quantities of all the ingredients required under the correct headings. Some candidates did not include all the ingredients they required while others did not indicate accurate amounts or did not total their ingredients. Many candidates did not list any special equipment when it was clear that some would be required.

Method marks awarded by the Examiners need to be justified with a clear explanation in each section. Comments such as “satisfactory approach”, “excellent work” and “very good in general” do not explain exactly what was “satisfactory”, “excellent” or “good”. It is important that Examiners are familiar with the mark scheme and that detailed comments are given on the candidates work. Some Examiners awarded high marks to all their candidates regardless of the level of skill involved. Sometimes comments on processes by the candidates in the evaluation section conflicted with the high method marks awarded by Examiners for particular sections. Suggested method marks are given in the instructions for marking the work of good, average and poor candidates. A candidate who shows little skill and has not chosen a sufficient number of dishes should not be awarded more than half marks.

Similarly, in the results section many comments made by Examiners were very general. “Tasty”, “fresh”, “pleasant” and “fine” are not sufficiently clear comments to describe flavour, texture and appearance of the dishes presented, as required by the instructions. Dishes should be named and marks for the results should be distributed amongst the dishes according to skill. Dishes with low skills, such as salads, should not be awarded the same proportion of marks as more skilful dishes such as pastries. Where very simple dishes are prepared, the maximum marks should be reduced. Some Examiners awarded the same high marks to dishes with low skills as dishes with high skills. Dishes which are planned and not completed or prepared but not previously planned should not be awarded marks. Dishes which are not thoroughly cooked or overcooked or lack flavour or are poorly presented should not be awarded full marks. Again, comments made by candidates in the evaluation section sometimes conflicted with the high marks awarded by Examiners.

Most candidates had studied the assignments carefully and supplied some relevant further information in section (b). However, in most cases the information was very short and could have included more detail or explanation. Personal evaluations were often brief, repetitive comments on results only, many candidates stating simply that their dishes were “nice”, “great” or “good”. Comments should be critical and should cover all areas of the work. Problems encountered during the actual cooking could have been mentioned and explanation could be given on how the problems were resolved. Achievements could be listed and comments made on the taste and appearance of each final product. Suggestions for improvement could be given for all stages of the work.

Comments on specific questions

Question 1

This was not a popular question. It was expected that candidates would prepare at least three varied dishes, suitable for family meals, which would include three different sources of Vitamin C. Dishes chosen should have included a variety of colours, textures and flavours, as well as illustrating different skills. It was particularly important that ingredients which were good sources of Vitamin C were used. Fresh fruit and vegetables are the best sources of Vitamin C, particularly green vegetables and citrus fruits. These need to be prepared and cooked in the correct ways to retain the vitamin content. Some candidates made good choices using at least three different fresh fruits or vegetables in a variety of skilful dishes. Others chose to make soup, which would lose Vitamin C with long cooking, or used tinned fruit or vegetables, which would not contain the maximum amount of Vitamin C. Sometimes a series of salads were chosen which did show the use of Vitamin C ingredients but these dishes were very limited in skills. For this question a wide variety of fruit and vegetables could have been prepared by different methods of cooking. Pastries, cake mixtures, batters, sauces, etc. could have been used together with sources of Vitamin C to make suitable skilful dishes. A combination of cooking some parts of the dish, e.g. a flan case, to show skill, and completing the dish with the addition of fruit or vegetables prepared in the correct way could gain maximum marks. Most candidates knew some of the ways of retaining the maximum Vitamin C in dishes served but answers were

often limited to two or three points only. Candidates could have discussed preparation immediately before cooking, no soaking, use of a sharp knife, use of a lid on the pan, not cooking for too long and other similar points. The importance of Vitamin C was usually given as “for healthy skin” and “for absorption of iron”. Few candidates answered fully. The prevention of scurvy, formation of connective tissue or healthy bones and teeth and helping wounds to heal could have been given. Most candidates did not state that a daily supply of Vitamin C is necessary because the vitamin is not stored in the body. Evaluations gave some information but were usually short, repetitive and lacked detail.

Question 2

This was the most popular question and was usually answered reasonably well. Candidates generally prepared three or four dishes which demonstrated at least three different ways of using eggs. Sometimes candidates made two different dishes showing the same use of eggs, usually showing eggs as a setting agent. Other candidates planned their dishes carefully so that they could show more than one use of eggs in one dish e.g. binding together pastry in a flan and setting the filling. There was some confusion between the use of egg and breadcrumbs for a coating, as in fish cakes, and eggs used for binding dry ingredients together as in meat loaf. Candidates did not often use eggs as a protein ingredient for a main dish. It was very helpful where candidates indicated the purpose of egg in the recipe alongside the name of the dish. This showed the Examiner that the candidate was thinking clearly and logically to fulfil the assignment. It also made clear the way the egg was being used, particularly if methods were not detailed. When explaining the reasons for the choice of dishes, candidates did not always refer back to the assignment to explain how their particular dishes showed different uses of eggs. The importance of eggs in meal planning could have included reference to eggs being versatile, easily available, easy to store, low in cost, good sources of high biological value protein and iron. Other uses of eggs could have been given, such as coating, glazing, emulsifying, etc. as long as there was not repetition with the reasons for choice of dishes. Evaluations lacked detail again in this question. Candidates need to explain what it is that makes their dishes “look good” and why they were “tasty” or “great”.

Question 3

This was a fairly popular question, with candidates choosing a wide variety of dishes, both sweet and savoury. Sometimes dishes were very colourful and attractive such as stuffed vegetables, stir fries, iced cakes, upside down puddings, etc. At other times candidates chose a variety of dishes which all seemed to be a similar colour, usually brown. There were some excellent skills shown in cakes, quiches, fish cakes served with a sauce, etc. However, some candidates chose to make very simple dishes such as mousses and salads. Although sweet and savoury salads are often very colourful, other than peeling and chopping they show very little skill. When asked to explain their choice of dishes many candidates simply stated that each dish was chosen “because it was colourful”. It would have been better if the candidates explained which ingredients introduced which colours into each dish. Other ways of making dishes colourful could have included browning by grilling, the addition of herbs and spices, glazing, adding colourings or decorating the dishes with other ingredients before they were served. Some candidates seemed to serve their dishes without decoration or did not make clear that they would do so in their written work. This would have been a good way to add colour to their final results. Evaluations again were usually fairly simple, mainly discussing the results produced and giving little information about the whole process. Much more specific detail is required.