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# FOOD SCIENCE

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Paper 0635/01

Theory Paper

## General comments

The overall standard of work this year was very satisfactory. Many questions were answered competently, indicating a sound understanding of the topics and an ability to apply information. Candidates should be reminded that mark allocations are for guidance; they indicate the proportion of time to spend on a question or part question and give a guide to the amount of detail required. Sadly candidates sometimes failed to read questions carefully and gave all the information they knew on a topic rather than the appropriate information. Key words should be noted such as name, explain and describe since they indicate the type of answers required. Often marks were lost because explanations were not given when asked for. Some candidates did not read the instructions on the front cover carefully enough. It is clearly stated that dark blue or black pen should be used, but the majority of candidates from one Centre completed the Paper in pencil. There were few rubric errors.

## Comments on specific questions

### *Section A*

#### **Question 1**

Candidates usually mentioned the fact that Hindus do not eat beef and that Muslims do not eat pork. The dietary choice imposed on Jews was sometimes noted and the food choices for vegetarians of all types was stated.

#### **Question 2**

- (a) Full marks were scored by the majority of candidates who could correctly identify HBV and LBV protein foods. Amino acids were known to be the end product of protein digestion. Many candidates were unable to state that 1g of protein has an energy value of 4kcal or 17kJ.
- (b) This question asked candidates to identify other functions of protein since protein as a source of energy was given in the previous part of the question. Usually growth and repair were noted but those who mentioned the production of enzymes and hormones were given equal credit.
- (c) Almost every candidate correctly stated that a deficiency of protein results in kwashiorkor.

#### **Question 3**

The majority of candidates were unable to define the cooking terms accurately. Some were unable to give examples so marks gained in this section were disappointing.

- (a) It was expected that candidates would be able to state that basting refers to the pouring of hot fat or water over the surface of food to prevent drying. Basting takes place, for example, when meat is roasted.
- (b) Many good explanations of the process of baking blind were given. Full marks were gained by those who stated that the term means that a pastry case is baked without a filling. Greaseproof paper and baking beans on the base of the pastry case support the shape and ensure that the pastry does not rise. Fruit Flan and Lemon Meringue Pie were the usual examples.

- (c) Although the majority of candidates seemed to understand the meaning of rubbing in, many found it difficult to explain the process. Full marks were gained by those who stated that it is the process of mixing together fat and flour by rubbing thumbs over fingertips because these are the coolest parts of the hand. The process aerates the mixture and is complete when the mixture resembles breadcrumbs. Examples of its use are in making shortcrust pastry, biscuits and scones. Those who gave cakes as an example were not given credit unless a named cake, for example Rock Bun, was given.

#### Question 4

- (a) It was well known that food, moisture, warmth and time are needed for the growth of bacteria. Credit was given if oxygen and a suitable pH were mentioned.
- (b) It was disappointing to note that many candidates were not able to state the effect of high and low temperatures on bacteria. Marks were awarded to those who stated that at 70 C bacteria are killed and that at temperature of -18 C they are dormant. It was frequently noted, incorrectly, that at low temperatures bacteria are killed.
- (c) Symptoms of food poisoning were well known. Candidates gained marks for including sickness, diarrhoea, headaches, stomach ache, fever, paralysis and death in their list.

#### Question 5

Candidates were usually very clear about the functions and sources of vitamin C, calcium and starch and scored well.

#### Question 6

It was well known that heat is transferred by conduction, convection and radiation but many candidates were unable to give examples of when each method is used.

#### Question 7

The majority of candidates clearly stated that one of the advantages of using a microwave oven is that it is a quick method of cooking; some stated correctly that less fuel is used. Few other advantages were mentioned. It was hoped that its use for defrosting would have been mentioned more frequently and that the same dishes can be used for cooking and serving, reducing the amount of washing up. Little was known about the disadvantages of using a microwave oven. It was expected that candidates would mention that it is easy to overcook food and that food does not develop a crisp texture or a brown colour. It was occasionally mentioned that metal containers cannot be used for cooking food in a microwave oven. Many candidates stated that it is a dangerous method of cooking because of the use of electro-magnetic waves. This is incorrect. The door seal ensures the safety of the appliance and the process cannot begin unless the door has been secured.

#### Question 8

Candidates had varying degrees of success when listing the points to remember when planning packed meals. Credit was given to those who gave some of the following information. A drink, a source of protein and some fruit must always be included. Too much carbohydrate should be avoided. There should be a variety of colours and textures in the meal, it should be easy to pack and easy to eat and it must not be easily spoilt either by being squashed or by the action of bacteria. All relevant information was credited.

#### Question 9

Many candidates gave good answers to this question on the digestion and absorption of fats, indicating a very sound understanding of the topic. The sentences to be completed were unambiguous and required the application of precise knowledge; those with little knowledge and understanding produced poor answers.

**Section B****Question 10**

This question was not a popular choice and those candidates who did attempt it were not usually very successful.

- (a) Most candidates were able to identify two factors which should be considered before purchasing a cooking stove. The factors noted included cost, space available, size of family and type of fuel. Credit was given to all valid points which could influence choice.

The function of an automatic timer was not well known. Full marks were awarded to those who stated that the cooker switches on automatically so cooking will begin without anyone being in the kitchen. Many candidates described a timer which is used to remind the cook when the set time has elapsed; an alarm of some sort usually sounds.

Some candidates correctly stated that ceramic hobs are easy to clean but no other advantages were stated. It was expected that some would know that ceramic hobs are flat so pans sit easily on them and that spills do not burn onto the elements. Disadvantages were not well known. Occasionally it was noted that heat is retained when burners are switched off. The cook could be burned since there is no red glow when the heat is off. No one mentioned that special cleaning agents are required or that spills may flow onto the floor or onto work surfaces since there is nowhere for liquids to collect.

- (b) The safe and efficient use of a cooking stove was not well discussed. It was hoped that candidates would mention that pan handles should be turned in to prevent the pan being knocked over. Mention was sometimes made of the need to use oven gloves to prevent burns when removing hot trays from the oven or that gas should not be turned on before striking a match. It was correctly stated that if pans need to be stirred they should be on a front burner so that stretching over pans on the front burners is avoided. It was disappointing that candidates were not able to give points on the efficient use of a cooking stove. It should have been noted that fuel can be saved by filling all the shelves of the oven and that an oven should be preheated for not more than ten minutes. Bases of pans should be the same size as hotplates to avoid fuel escaping around the base of the pan. The flames of a gas stove should not extend up the sides of a pan. It is not only wasteful of fuel but is also dangerous. Many points could have been explained but few were made.
- (c) Candidates were unsure of the way heat is distributed in ovens. In an electric fan oven there are elements at each side which produce heat. The fan at the back of the oven circulates the heat evenly. In a gas oven the burners at the back heats air from the bottom closest to the burners. Hot air rises and cold air falls creating zones of heat. In a fan oven, because the heat is even, all of the shelves can be filled with dishes requiring the same cooking temperature. More shelves can be fitted into the oven. In a gas oven the middle shelf is at the temperature of the oven setting. The top shelf is 1 mark hotter and the bottom shelf is 1 mark cooler. Dishes requiring different temperatures can be cooked at the same time.
- (d) The Question Paper included a chart showing gas settings which corresponded to cool, moderate, hot and very hot. Candidates were unable to state the corresponding settings for an electric cooker either in degrees Celsius or degrees Fahrenheit. Some marks were gained for suggesting dishes which could be baked at each of the settings but on the whole answers were poor.

**Question 11**

This question was popular and many candidates gained good marks.

- (a) Examples of white fish, oily fish and shellfish were usually accurate.
- (b) Most candidates were able to state that oily fish contained HBV protein, and could state a function of protein. Credit was given for naming other nutrients and for stating a function of each. Those nutrients included fat, vitamin A, vitamin D, calcium, iodine, fluorine and sodium chloride. There was evidence of much guesswork, however. Some candidates seem to mention any nutrients known to them in the hope that some marks can be gained. This is rarely the case.

- (c) Candidates were very competent at listing points to look for when buying fresh fish. They noted that eyes should be bright and prominent, gills should be bright red, there must be plenty of scales and they should still be attached to the body, the tail should be stiff and the body firm and plump. There should be a pleasant fishy smell. Full marks were gained by those who gave any four of these points. It was not well known that fish should be cooked on the day it is bought because fish may live near a sewerage outlet where they are exposed to bacteria or they may harbour bacteria in their bodies. If these bacteria are not destroyed there is a possibility of food poisoning occurring. The methods given for preserving fish were usually correct but examples were not always given. Canning, smoking, pickling, freezing, salting and drying were all acceptable answers but if examples were not given half the possible marks for that part of the question were forfeited.
- (d) Most candidates were able to state and explain two advantages and two disadvantages of frying as a method of cooking fish. Most noted that it was a quick method but rarely noted that the reason was the lack of collagen allowing the fish to tenderise quickly. Many mentioned that the fish becomes brown and crisp and that flavour and nutrients are added. Again, explanations were usually missing so marks were lost. Some candidates noted that frying could be a dangerous method of cooking because hot fat can splash or catch fire if full attention is not given, others stated that frying is not a healthy method of cooking because of the addition of fat. If animal fat is used for frying there could be a risk of CHD. Since calories are added when fat is used during frying, there is the possibility that weight will be gained if those calories are not used by the body. The quality of the answers to this part of the question was good, demonstrating a clear understanding of the advantages and disadvantages of frying.

### Question 12

This was also a very popular question and was attempted by most candidates.

- (a) Candidates were usually able to name four different cereals and could successfully state one product made from each of them. Flour and semolina were some of the suggested products made from wheat; rice flour, rice paper, ground rice and breakfast cereals were the products associated with rice while corn flakes, cornflour and popcorn were known to be made from maize. Barley was associated with beer and other brewed products, oats were known to be used for producing porridge and biscuits and rye could be used for bread and biscuit making. All candidates answered this part of the question well.
- (b) The diagram to show a section through a cereal grain caused problems for some candidates. It was expected that the diagram would show the position of the germ, the bran and the endosperm and that each part would be labelled correctly. Some candidates gained marks for naming the parts of the grain but had difficulty placing the parts on a diagram. Few candidates were able to highlight more than one difference between whole and refined grains. It was generally known that the whole grain has bran which contains NSP (dietary fibre). Some mentioned that the germ contains fat, calcium, iron and B vitamins but that it is removed during refining. It was rarely noted that refined flour is composed of endosperm only so it is mostly starch and LBV protein. It was expected that candidates would identify beri-beri and pellagra as the deficiency diseases associated with refined cereals and would give symptoms of those diseases. Many answers included the name and a description of at least one of those deficiency diseases. Some stated that constipation and other conditions could be the result of a lack of NSP (dietary fibre). This, although factually correct, was not credited because deficiency diseases are associated with a lack of specific nutrients. NSP is not a nutrient since it is not digested and absorbed by the body.
- (c) Good advice was given on the storage of cereals and explanations were sound. It was suggested that cereals should be tightly covered to prevent the entry of insects, dust and micro-organisms and that they should be stored in a dry place because dampness encourages the growth of mould. Conditions must be clean to prevent contamination by, for example, weevils. Finally, cereals must be used in rotation because some of them have a short shelf-life; whole grains contain fat which will turn rancid.
- (d) Many candidates gave good definitions of dextrinisation and coagulation. Dextrinisation was known to result from the action of dry heat on starch. The heat removes water from the starch forming dextrin which is brown and more sweet than starch. A dry surface is formed for example on toast, the crusts of bread and the surface of cakes. Gelatinisation was correctly described as the effect of moist heat on starch. The starch grains absorb water and swell, thickening liquids such as custards and roux sauces. It was disappointing to note that several candidates thought that gelatinisation was associated with the formation of gelatine and described the effect of moist heat on tough meat.

**Question 13**

This question was the least popular of all the questions in **Section B** but those who chose it were fairly successful.

- (a) Many candidates correctly explained that the term 'micro-nutrient' referred to a nutrient which is required by the body in very small amounts.
- (b) Most candidates were able to state that iron is required for the formation of haemoglobin which gives blood its red colour and that it is needed to carry oxygen from the lungs to the cells for the production of energy. It was well known that a deficiency of iron will result in anaemia which is characterised by a pale skin and a lack of energy.
- (c) There were few correct explanations of the part played by vitamin C in the absorption of iron. Full marks were gained by those who stated that vitamin C helps to convert ferric (non-haem) iron into ferrous (haem) iron or who explained that haem iron is more readily absorbed than non-haem iron. Green vegetables were known to be a source of non-haem iron but few candidates were able to name eggs as another example. It was well known that oxalic acid, phytic acid and NSP affect the absorption of iron.
- (d) The other functions of vitamin C were usually stated correctly. It is important for the formation of connective tissue, for growth and repair, for a clear skin and for healing wounds. Scurvy was known to be the result of a deficiency and its symptoms include swollen gums, loose teeth, bruising, and haemorrhaging from broken blood capillaries. Most candidates were able to name good sources of vitamin C and iron but tended to give poor explanations or how an adequate supply can be provided in family meals. It was expected that methods of conserving vitamin C during preparing and cooking would be mentioned, explaining that vitamin C can be destroyed by heat, by oxidation and by dissolving in water. The need to buy and serve very fresh fruit and vegetables could have been mentioned and the advice to serve some of them raw. Examples of ways of serving foods containing vitamin C and iron in family meals were credited.

**Section C****Question 14**

This was a popular question and those who chose to answer it were often very successful. Many factors which should be considered when planning meals were discussed. They included the age of those eating the meal, their gender, their state of health and their occupation. The occasion was an important consideration since, for example, different dishes would be chosen for a packed meal and a birthday party. Candidates often mentioned the need to consider the time, equipment and money available and some mention was made of the capabilities of the cook. The need to plan meals with a variety of colour, flavour and texture was also an important factor. There were many other considerations and all of them were credited.

The second part of the question was related to the specific dietary needs of the elderly; explanations and examples were asked for so those candidates who merely listed the needs of the elderly could not gain high marks. Most candidates mentioned the need to reduce the intake of fat because of the risks of obesity and CHD, to reduce sugar to reduce the risk of diabetes, and to reduce salt to lower the chance of high blood pressure. Other valid points included the advice to avoid fried foods because they are difficult to digest, to serve small portions because elderly people are less active and additional calories are stored as fat, and to ensure an adequate supply of NSP to avoid constipation. Foods should be easy to eat and easy to chew although many candidates seem to be of the opinion that elderly people have no teeth and should be served soft foods. A regular supply of protein is needed for maintaining the body, calcium is required to prevent osteomalacia and vitamin D is required for the absorption of iron. It is important the elderly people have a supply of iron in order to prevent anaemia and a daily supply of vitamin C for the absorption of iron. There are many other valid points to consider but all of them must be specifically related to the needs of the elderly.

**Question 15**

This question was also very popular and many of the answers were of a high standard. Candidates usually noted that fats are made up of glycerol and fatty acids. Many candidates, however, incorrectly stated that fats are composed of carbon, hydrogen and oxygen. Saturated fats, which are solid at room temperature, have single bonds in their molecule and have all the hydrogen they can hold; mono-unsaturated fats have one double bond in their molecule so have room for more hydrogen and polyunsaturated fats have two or more double bonds so they also can take up more hydrogen. Both of these are liquid at room temperature. Some candidates showed some of this information in diagrammatic form. The functions of fat were discussed well. Its use as a concentrated source of energy and a source of fat soluble vitamins were mentioned together with the fact that excess fat forms the adipose layer under the skin insulating the body from the cold. It was well known that fat adds flavour to foods and that it has a high satiety value because it takes a long time to digest. Problems associated with a diet high in fat were generally discussed well. Animal fats contain cholesterol which is deposited on artery walls, narrowing them and eventually blocking them and causing a heart attack. If the intake of fat is greater than the body's need any surplus fat will be stored in the body, either under the skin or around internal organs, leading to obesity. This has its own associated problems such as breathlessness and a lack of self esteem. Many candidates wrote very informative accounts of the problems caused by a diet high in fat.

The final part of the question asked candidates to suggest ways in which fat intake could be lowered. Many answers lacked detail, citing only one of two different ways to reduce fat. It was hoped that candidates would suggest grilling foods instead of frying them, to use products such as cottage cheese, low fat spread and low fat yoghurt and to reduce the amount of red meat, sausage and bacon in the diet. White meat and fish could be served instead. It was generally recommended that the intake of chocolate, cakes and biscuits should be reduced. The list of possible suggestions is long but answers lacked useful information. Some candidates misinterpreted the question and suggested ways of losing weight by exercising and reducing sugar consumption. Suggestions of this sort were not relevant to the question so could not be credited.

**Question 16**

This question was not popular and was attempted by very few candidates. It was expected that candidates would consider a range of nutrients and discuss the effect of cooking on them. Vitamin C, for example, should be cooked in little water and a lid should be on the pan. No bicarbonate of soda should be used and vegetables must be boiled for as little time as possible. Vitamin C is easily destroyed by heat and oxygen, it is soluble in water and is neutralised by alkalis. Cooking liquid should be incorporated into the meal so that any dissolved vitamin C can be served. Protein foods such as meat and cheese should not be overcooked otherwise the intense heat will denature the protein and make it indigestible. Starchy foods, for example pastry and bread, should not be overcooked because starch will carbonise and cannot be digested. Reheating food or keeping it warm before serving should be avoided to prevent the loss of vitamins B and C which are sensitive to heat. Fats should not be overheated otherwise they decompose into glycerol and fatty acids which irritate the stomach and cannot be digested well.

The number of points on methods of cooking food to maintain its nutritive value is exhaustive but credit was given to descriptions of cooking named foods to retain nutrients and to the effects of overcooking foods. The effect of cooking on the digestibility of protein, sugar and starch could have been discussed as could the wisdom of mixing foods together to improve nutritional content. A mixture of different proteins can improve the quality of the protein; a mixture of LBV protein foods can produce HBV protein and eating foods containing iron and vitamin C together will ensure the absorption of iron. Those candidates who attempted this question gave limited information.

**Paper 0635/02****Coursework****General comments**

There were many very good pieces of Coursework, demonstrating sound application of knowledge. The Coursework component differentiated well between candidates. Teachers, generally, gave very helpful comments on the individual mark sheets, justifying the marks awarded for each section, although in some cases no justification was given. Sometimes it was remarked that candidates had not taken advice or had not followed guidelines on time allocation. Comments of this nature are very useful because they further justify the marks of the Teacher. Although each candidate is responsible for his or her own Coursework, it is important that everyone is aware of the guidance given in the Distance Learning Manual. This is a valuable document because it clearly identifies the sections to which marks are allocated and gives an indication of the content of each area. Teachers and Moderators find it easier to assess Coursework if it is set out in sections. Folders were, for the most part, very attractive, indicating that a great deal of time and effort had been devoted to the task. Candidates should, however, 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. This is not necessary; it increases the cost of sending the work to the UK, in addition to the cost of purchasing the folders. Many studies benefited from the inclusion of photographs. Some candidates chose to word-process their work; others used handwriting. Both are acceptable but in both cases care is needed. Handwriting should be neat, easy to read and free from crossings out. A ruler should be used for all straight lines and for underlining headings and sub-headings. A few candidates used a combination of handwriting and printing; this should be discouraged. Occasionally web pages were included. This is inappropriate; any information gathered from the Internet should be incorporated into sections written in the candidates own words.

**Comments on specific parts****Introduction**

Introductions were generally good, clearly identifying the topic to be investigated. Reasons were usually given to justify choice. It is important that the aims of an investigation are stated otherwise it is difficult to evaluate the degree of success. It was useful when candidates discussed the methods they planned to use when carrying out their investigation. Sometimes a plan of action was added; this was valuable because it identified what was to be done and how each process was to be carried out. The most informative reports gave reasons for choosing a particular course of action. The advantage of this is that candidates are encouraged to be logical in their approach.

**Investigation**

Each study included a clear statement of what was to be carried out. Sometimes a time schedule was included. This was especially useful in the later stages of the investigation because it allowed candidates to comment on the feasibility of their original plan. They could identify problems, justify changes and demonstrate their ability to adapt to changing circumstances. Most candidates correctly included copies of any letters they had written, the replies to their letters and blank questionnaires; they should be reminded that if interviews are planned a list of questions should also be included. Many candidates included all of their completed questionnaires. These do not form part of the report; they provide the data which is presented in the appropriate section of the study.

**Summary of findings/conclusion**

This was the weakest section of many of the studies. Candidates were able to produce satisfactory evidence of their data collection from a variety of sources but often made little attempt to analyse their results. Sometimes their results could not be used to support the original focus of their investigation. Conclusions were often drawn with little reference to the data collected. There were, however, many examples of very thorough analysis of results leading to a well-founded conclusion.



## Evaluation

It is suggested that this section should be about eight pages long although this figure is only 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 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. The studies are the work of one individual so impressions and opinions are important features of the study. 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 studies were too wide in their scope. It would, for example, be impossible to study obesity in developed countries or to investigate whether 7 year old children were consuming five portions of fruit and vegetables each day. It would be better to demonstrate the limitations of a study by including the area of study in the title.

*'Are children in class 3 of .....Junior School eating five portions of fruit and vegetables a day?'*

Studies which are too wide result in reports which are unrepresentative and would not lend themselves to the formulation of conclusions. All studies are, by their nature, limited so the title should serve as a reminder of this.

Those who used interviews to collect data usually listed appropriate questions but sometimes the questions in the questionnaire were neither well-structured or necessary. There was little evidence that pilot studies had been carried out so ambiguous questions had not been modified. Often there were questions which led to a YES or NO answer. This type of questioning is not very useful since it does not allow responses to be analysed. The most interesting reports included observations and anecdotes; they make for 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. It should, however, be appropriate. It is a waste of time to draw a pie chart or bar chart to show the responses to a simple question when a sentence would convey the same information just as clearly. Occasionally graphs and charts were untitled. It is always better to insert graphics into text at an appropriate place to avoid turning pages when reading. Although the majority of candidates word-processed their reports and used computer graphics to display their data, they must be reminded that the use of 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. Some candidates used a variety of fonts and print sizes within their study; this is a distraction. It is better to use the same style throughout.

Occasionally candidates drew conclusions from their research for which there was no evidence. Reference must be made to 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 particular nutrients were not always successful because they did not request the weighing and measuring of foods. This made their calculations invalid although the plan to analyse food intake was usually appropriate. Food diaries should give enough space for a description of each food. Meat, for example, could be chicken or beef which have different nutritive values. Similarly, whole milk and skimmed milk should be clearly identified. The use of food tables was noted and this was encouraging because candidates usually related the intake of particular nutrients to RDIs. Conclusions were well expressed.

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 at using the computer and others learnt how to be 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 and 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 should be congratulated on their work.

**Paper 0635/03**

**Alternative to Coursework**

**General comments**

The overall standard of work was satisfactory but few candidates produced very good work. 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. There was clear evidence of factual knowledge but explanations were often omitted when asked for. Candidates should be reminded that mark allocations and the amount of space provided for answers are an indication of the time to spend on an answer and the amount of detail required. Despite the instruction that blue or black pen should be used for answering questions a few Papers were completed in pencil.

**Comments on specific questions**

**Question 1**

- (a)(i)** All candidates were able to gain full marks for calculating the difference in the number of cases of food poisoning between specific years.
- (ii)** There were few suggested reasons for the difference in the number of cases although several candidates correctly mentioned that cases would be more likely to be reported if people had more knowledge of the symptoms of food poisoning. Another suggestion was that a greater number of people eat ready-prepared foods. The range of possible reasons was wide; it could have been stated that food handlers may have had insufficient training or that there is now more large-scale production of foods. Credit was given to all valid points.
- (b)(i)** The bar charts presented were generally good. They were well constructed and the scale chosen was appropriate. Some candidates, however, made little attempt to draw to scale and did not show any numbers on the vertical axis; they merely labelled the bars with the relevant numbers of cases as taken from the chart. Consequently the result was not accurate. Marks were awarded for a title, accurately labelled axes and accurately plotted points.
- (ii)** Most candidates were able to make appropriate comments on the quality and usefulness of their chart. They mentioned the appropriateness of the scale, the care taken over colouring and the ease with which the chart could be read. Trends could be spotted and the relationship between years could be noted.
- (iii)** Candidates were usually able to gain full marks for stating that the information could have been presented as a line graph or as prose.

- (c)(i) The symptoms of food poisoning were well known.
- (ii) Full marks were scored by those candidates who correctly explained that 'cross-contamination' refers to the transfer of bacteria from food being passed to food free from bacteria by contact, that 'incubation period' is the time between infection and the appearance of symptoms, 'toxic food poisoning' is caused by bacteria secreting harmful substances into food and 'high risk foods' are foods which spoil rapidly (perishable foods) because they provide suitable conditions for bacteria to multiply.
- Candidates often found it difficult to give explanations; precise information is required and facts must be learnt.
- (d) Most candidates were able to give satisfactory accounts of points of hygiene to observe in food shops. They noted the cleanliness of both the shops and the handlers, the correct storage of food and the use of different equipment for raw and cooked food to avoid cross-contamination. Many candidates mentioned the need to keep animals and pests away from shops or stalls, for staff to avoid touching their hair or faces, to cover cuts with waterproof plaster and to have hand-washing facilities. Some correctly mentioned the importance of noting the date stamp on food and the need to store perishable foods in clean, cool places. The need to cover food to prevent pollution or handling was noted.
- (e) Most answers were much too brief; ten marks were allocated to this section which asked for advice on the storage, preparation and cooking of frozen poultry. Most candidates gained some marks but answers lacked detail. It was expected that a temperature of -18 C or below would be given as the correct temperature for a freezer to prevent the multiplication of bacteria. Some candidates correctly stated the polythene bag must be completely sealed to prevent 'freezer burn'. It was expected that well-explained points would be made regarding the need to defrost poultry thoroughly before cooking and the importance of defrosting in a cold place. Explanations could have been given of the problems which may occur if the centre of the bird is not fully defrosted before cooking. Most candidates noted the possibility of food poisoning by Salmonella bacteria. Credit was given to points about the storage and reheating of cooked poultry. It was expected that temperatures for storage and cooking would be included. Candidates should be reminded that the space provided for the answer and the mark allocation should be used for guidance.

## Question 2

- (a) The importance of protein foods in the diet was well known; most candidates gained most or all of the available marks.
- (b) Many reasons were given for individuals choosing to avoid animal sources of protein. Cost, religion, health, availability, food scares, being a vegan and a dislike of the taste, texture or smell of meat were all credited. The question, however, asked for explanations of the reasons given. It could have been stated that some consider animal protein unhealthy because of the saturated fat or cholesterol it contains; BSE could have been mentioned as a food scare and comparisons could have been drawn between the cost of meat and pulses. The importance of reading questions carefully cannot be stressed enough. Candidates cannot afford to limit their marks by not addressing questions fully.
- (c)(i) It was expected that candidates would list all of the sources of protein they knew from animals and plants.
- (ii) Many candidates found it difficult to construct a useful chart. It was hoped that the chart would consist of a list of meats and meat alternatives on one axis and a range of words to record frequency - daily, weekly, sometimes, never etc. - on the other axis. Results could have been recorded by tallies in each square. There were many other possibilities. The only criterion was that the chart fulfilled the requirements of the task. It is vital that in questions of this nature candidates study their solution to the problem and assess its usefulness. Some of the charts submitted would not have worked.

- (d) The first line of this part of the question clearly states that the subject is the preservation of protein foods. Some candidates appeared to have noted only the fact that preservation was the focus, so much of their information was irrelevant.

There were, however, many very good answers which highlighted a sound knowledge of the topic. Most candidates were able to name methods of preservation and could give examples of foods preserved by those methods. They were not always able to give the scientific principles involved. Many candidates stated that micro-organisms are destroyed by freezing. Full marks would have been scored for stating that at temperatures below -18 C bacteria are dormant. The other methods of preservation could have been explained equally succinctly.

### Question 3

- (a)(i) All candidates were able to state that the proportion of fat to flour is half.
- (ii) It was expected that the ways of varying the fat used would include the use of butter, margarine, lard, vegetable fat or a mixture such as half lard and half margarine. Credit was not given for brand names.
- (iii) There were many excellent accounts, with reasons, of the preparation and rolling of shortcrust pastry. Again, the mark allocation and the amount of space provided for the answer, should have been used as an indication of the amount of detail required.
- (iv) Most candidates were able to give a temperature for the baking of shortcrust pastry. No marks were awarded if Celsius or Fahrenheit were not indicated.
- (b) Many candidates were able to give a range of controls to follow when carrying out an investigation. Some of those noted were the use of the same person to prepare each type of pastry, using the same equipment and measuring ingredients accurately. Pastry must be rolled to the same thickness, cut with the same cutter and baked on the same shelf of the same oven. The cooking temperature and time should also be identical. Those who understood the concept of controlling an experiment and varying only one factor - in this case the type of fat used - were able to score full marks.
- (c) The criteria which could have been stated for evaluating the pastries could have included appearance, colour, evenness of colour, flavour, texture, shortness, lightness and 'mouth feel'.
- (d) Candidates were able to give several appropriate suggestions which a tasting panel might use for indicating preference. Some of those mentioned were a scale ranging from a happy face to a sad face and Hedonic ranking. Alternatively, each characteristic could be given a score; these would be added to give a total score for each sample.
- (e)(i) It was well known that pastry will shrink if it has been stretched during rolling and has not been allowed to rest before baking; gluten is developed during rolling.
- (ii) Hard and tough pastry was known to be caused by the use of too much water, too much flour for rolling and an oven temperature which is too low. It can also be the result of rolling and re-rolling the pastry too many times.
- (iii) Crumbly pastry which is difficult to roll is often the result of too high a proportion of fat or fat which is too soft for rubbing in. Too much rubbing in or not using the fingertips could be the cause. Insufficient water or water which is not cold enough was correctly given as an explanation by several candidates.
- (iv) Blistered pastry was known to be caused by the use of too much water or uneven rubbing in. It could happen if the pastry is cooked at too high a shelf position.

Many candidates were able to give sound answers to this part of the question.

**Paper 0635/04****Practical Test****General comments**

All candidates attempted each section of the Examination Paper but a number of them did not seem to use their time to advantage. If too much time is spent choosing dishes, the remaining time may not be sufficient to produce a useful time plan. If this is not adequately done and is lacking in detail it will not be as helpful as it could have been during the practical session.

Several candidates mentioned that they had prepared dishes for the first time during the test; this is unwise since they would be unfamiliar with the amount of time to allow for each stage of the dish and would not be confident of the outcome. The general instructions advise candidates to choose familiar dishes.

The evaluation section was attempted well by the majority of candidates. Thirty minutes are allowed for this section so it is not expected that several sides of paper are needed in order to give good answers. In the majority of Centres the evaluation section is completed shortly after the completion of the practical test so that candidates can comment on their work while it is still fresh in their minds.

It was a matter of some concern that candidates in some Centres referred to work done during the practical test on the previous day and recounted comments made by the Teacher on the quality of their work. This is not in the spirit of the Examination; it is the candidates' evaluation of their own work which is important. It is expected that the original version of the candidate's work is sent to the UK, not a photocopy. In some cases the white and pink copies were sent and were still fastened together when received by the Examiner. One copy should be followed by the candidate and the other copy by the Practical Examiner during the practical test.

It is most helpful if all of an individual candidate's sheets are fastened together securely before being sent to CIE. Often the pages were loose or in no particular order. No shopping list was received from some candidates. Candidates should have at hand all of their written sheets during the evaluation session so they should take responsibility for collating and securing their own work. A paper fastener is more secure than a paper clip; staples should not be used. Practical Examiners who use photocopies of individual mark sheets should be sure that the copy is not too dark. Sometimes it is impossible to add comments and marks to the sheets because the printing is black instead of light grey in some areas. These parts are for the use of the External Examiner so care must be taken with photocopying.

It was disappointing to find that the marking instructions were not followed carefully in some Centres. Page 3 of the Mark Scheme states clearly that where a candidate is preparing very simple dishes, the maximum mark for results must be reduced. This instruction is ignored by most Centres with the result that candidates are awarded very high marks for dishes which involve little skill. In several Centres the maximum mark of 30 was used for every candidate regardless of the dishes chosen. Sometimes, if three dishes were chosen, each dish was marked out of a maximum of 10 marks even though one dish was clearly more involved than the others; there are no circumstances in which a quiche can be awarded the same mark as a simple salad.

Marks for each dish must be apportioned before the beginning of the test; it is a matter of some concern that some Examiners are allocating marks to dishes which were not part of the original plan. If a candidate decides to add to the number of dishes being made or substitutes dishes, the additional dishes cannot be marked. Obviously there will be implications for the time plan if dishes are made which were not planned. A dish which is planned and is not produced must be awarded zero. These marks are not available for other dishes.

Examiners are reminded that the space provided at the side of each named dish must be used to justify the mark awarded. A single word is not acceptable. Reference should be made to colour, flavour, texture and garnishing whenever appropriate. It is not helpful to state that a dish was 'fine' or 'impressive'. In one Centre the word 'good' was used to justify every mark. The marks should also reflect the descriptions given; if a dish is said to have underdone pastry or meat, for example, it is inedible it may not be worthy of a mark. Similarly, if a dish is poorly shaped or overcooked it cannot deserve an almost perfect mark. Although photographs are not essential they provide valuable information for completing the mark sheets. The presentation mark can be supported by a picture.

Method marks were seldom justified. Examiners must make themselves familiar with the mark scheme and follow instructions for completing the mark sheets. Again, single words or short phrases were often used to describe a candidate's work. It is not appropriate to state that a candidate could not be faulted; this is an IGCSE examination and no candidate would be capable of producing faultless work for a two hour period. Realistic comments are needed. Suggested marks are given in the Mark Scheme for poor, average and good candidates. It is worrying that some Examiners are ignoring these guidelines and are awarding maximum method marks to every candidate in their Centre. This is especially worrying when candidates comment in their evaluation section that some of their work was disappointing.

Candidates should be reminded that they must plan sufficient work to occupy all of the time available and that all of their washing up should be completed. They must demonstrate their skill in as many different ways as possible; simple dishes cannot score as highly as more skilful dishes.

Time plans must include a detailed order of work with an indication of the methods used, the cooking temperatures and cooking times. It is not expected that methods be written out in detail; this is too time-consuming. Sequencing or dove-tailing within the order of work is essential. A number of candidates write out each method one after the other even though this would not be the sequence of events during the practical test. Candidates should try to avoid leaving large periods of time on their plan without indicating what they hope to do. It is more helpful to break up the time so that it is possible to gauge whether they are keeping to time or not.

Candidates should be reminded to read the questions in the evaluation section carefully so that their responses are relevant. In addition, they should make comments on their work during the examination, whether positive or negative.

### **Comments on specific questions**

#### **Question 1**

This was the least popular question. It was not necessary for dishes to make a meal, merely that the dishes chosen could be served at a local or a family festival. The most successful candidates included a range of skills such as cake making and decorating and meat cookery. Most candidates who chose this question indicated their overall theme, perhaps a local festival or a religious festival but were less successful when giving their reasons for choosing individual dishes. Reference could have been made to ingredients used in traditional dishes or to the method of decorating, for birthdays and Christmas, for example. Colour may have been an important factor to mention as in Chinese New Year celebrations. Credit was given to every valid point. Many appropriate points were made on the importance of the presentation of foods for special occasions. Some mentioned that more time would be spent on decorating and garnishing and that some dishes, like birthday cakes, could be the focal point. Certain spices are expensive and are reserved for special occasions. The evaluation section was well done; many candidates scored full marks.

#### **Question 2**

This was by far the most popular question. Candidates produced a range of dishes using rice and pasta; most tried to include a least one sweet dish. The range of dishes chosen, however, was rather limited. Many candidates chose to make pasta salad and rice salad so much of their time was spent preparing vegetables. Lasagna was a popular choice and this gave the opportunity to show sauce making and meat cookery as well as vegetable preparation. It was a pity that no-one used ground rice to make a cake or biscuits as this would have increased the number of skills demonstrated. Dishes tended to be simple so the marks both for the results and for method were affected. The importance of staple foods in family meals was well known and many other methods of serving rice and pasts were suggested so most candidates scored well in the evaluation section. They generally made constructive comments on their work during the practical test.

### Question 3

Although this question was less popular than the previous question, candidates tended to choose a limited number of ingredients rich in vitamin D. It seemed that a number of candidates chose ingredients that were good sources of calcium; they were not necessarily rich in vitamin D. As expected, margarine, milk, cheese and eggs were often used but red meat and oily fish were included less frequently. A common misunderstanding was that any fish was a good source of vitamin D. It was especially important that candidates identified the type of fish they planned to use both in their list of ingredients and on the shopping list. It was a pity that in several instances the same ingredients were included in more than one dish; tuna or cheese would often appear in two or three of a candidate's chosen dishes. Candidates occasionally chose to use skimmed milk which is not a source of vitamin D since the fat has been removed. It is vital that candidates are reminded to think carefully about their choice of dishes and modify ingredients if necessary. The importance of vitamin D was well known and the evaluation of practical work was good.