FOOD AND NUTRITION

Paper 0648/01

Theory

Key Messages

- To score full marks in ***Section A*** some elaboration and detail is required.
- ***Section B*** answers require knowledge with understanding. Candidates should be able to apply their knowledge to a range of situations.
- ***Section C*** requires candidates to consider questions in their widest form and to plan the answers carefully. Explanations, reasons and examples to illustrate points made are essential. Answers should be balanced and should address each part of the question.
- Questions requiring simple, straightforward answers were done well but more demanding questions needed to contain more explanations and discussions.
- Introductory words and sentences should be used to establish the type of information required in the answers.

General Comments

A wide range of marks was achieved in this paper. Some candidates scored well, demonstrating sound knowledge of the subject and an ability to apply that knowledge to a range of questions. Examples were given where appropriate. Some candidates were unable to give basic facts so were not able to give explanations or examples to illustrate points. The importance of reading questions carefully and planning answers cannot be stressed enough. Many answers showed little evidence of planning; they were brief and gave little information.

Candidates seemed to have had sufficient time to answer the required number of questions. There were few rubric errors; some candidates attempted both questions in ***Section C***. Candidates seemed to have made good use of both mark allocations and the amount of space provided for answers.

Comments on specific questions

Section A

Question 1

(a) Most candidates were able to name several fats and could name some vegetable oils. Examples were usually limited to corn oil, maize oil and fish liver oil.

(b) It was well known that fats are solid at room temperature and that oils are liquid.

(c) Candidates were able to give a number of functions of fats in the body. Many gained full marks.

(d) There was often confusion about saturated and polyunsaturated fats. Saturated fats have single bonds and contain the maximum amount of hydrogen. They are usually from animals.

Polyunsaturated fats have at least two double bonds in the molecule and can accept more hydrogen. They are usually from plants.

Few candidates were able to state that essential fatty acid must be included in the diet because they cannot be manufactured by the body. Fatty acids, with glycerol, are the products of the digestion of fats.

(e) There were many excellent answers to the questions relating to the digestion of fats. Some candidates did not seem to understand the digestion process. Precise information was required at all times.

(f) There were many good accounts of the problems associated with a high fat intake. Excess fat is stored and can lead to obesity and a high intake of animal fat means high levels of cholesterol in the diet. This can be deposited along the inner walls of the arteries, leading to CHD and strokes.

(g) Most candidates chose to focus their answer on vitamin A and vitamin D as fat-soluble vitamins. Vitamins E and K were less frequently chosen. The functions of the chosen vitamins were well known and sources usually correct.

Question 2

This question required candidates to identify particular nutrients for elderly women and teenagers. Reasons for each of the nutrients named were required, in order to gain full marks. Elderly women need protein for repair, calcium for strengthening bones and less fat, sugar and salt to reduce the risk of obesity, diabetes and hypertension. They need less energy-giving food because they are lass active.

Active teenagers need protein for their growth spurt, calcium for growing bones and teeth and water to replace that lost in perspiration. Girls especially require iron to replace that last in menstruation and to carry oxygen for cell respiration. All valid nutrients were credited.

Section B

Question 3

(a) Gelatinisation was known to be the effect of moist heat on starch. Starch grains absorb water, soften and swell. Some of the starch grains rupture and the liquid thickens. The most frequent examples given were custard, roux sauce and boiled rice.

(b) Most candidates were able to state that coagulation is the result of heat on protein. It is an irreversible process which denatures the protein molecule. Some candidates were able to state the temperature at which coagulation occurs. The most popular example was egg.

(c) Most candidates scored full marks for their explanation of fermentation. It was known to be associated with yeast which, given suitable conditions of food, warmth and moisture, will produce carbon dioxide and ethanol. Most candidates gave bread-making as their example.

(d) The temperatures and times for different methods of pasteurisation were generally known but there was some confusion about the purpose of the process. The heat destroys harmful and souring bacteria allowing milk to keep longer. Pasteurisation does not destroy all bacteria; it merely allows milk to be kept longer.

(e) Some candidates gave excellent accounts of hydrogenation. It was hoped that candidates would state that liquid oils become solid as they take up hydrogen. They become more saturated. The process can be stopped at any time to achieve the degree of hardness required.

Question 4

(a) (i) Most candidates were able to give some valid points about each of the ingredients in a Victoria sandwich cake. Self-raising flour contains a chemical raising agent so there is no need for additional baking powder. It is a starchy product which provides energy and contains gluten which sets on heating to form the framework of the cake. Air is trapped during sieving which provides an additional raising agent.

(ii) Sugar adds flavour and sweetens the cake. When creamed with margarine air is trapped, lightening the mixture. When sugar is heated by dry heat during baking, caramelisation occurs on the surface of the cake giving a brown colour. The high concentration of sugar in the recipe helps the cake to retain moisture so it keeps longer.

(iii) Margarine also helps the cake to retain moisture. Being a fat it is a concentrated source energy. Vitamins A and D are added during its manufacture and it is responsible for adding colour and

flavour to the cake mixture. As previously stated, air is introduced when margarine is creamed with sugar, lightening the cake.

(iv) Eggs provide protein and iron. They contain a high proportion of water which changes to steam during baking, helping to raise the mixture. The protein coagulates on heating helping to set the shape of the cake. The egg yolk contains lecithin, an emulsifying agent, which keeps the fat and water in the mixture separate, preventing curdling.

(b) (i) The only acceptable answers to explain why the cake has risen to a peak then cracked were that the oven temperature was too high, the cake was on too high a shelf or there was too much mixture for the size of the tin. Few candidates were able to give more than one of these points.

(ii) There were many excellent reasons for a close-textured cake. Most candidates noted that too little raising agent had been used or that the air had been beaten out of the cake because the flour was beaten into the cake instead of being folded. The oven temperature could have been too low, the oven door could have been opened during cooking or the cake was not cooked for long enough.

Question 5

(a) There were many excellent accounts of the advantages and disadvantages of frying. It is a quick method of cooking which gives a brown, crispy surface to food. Fried food has a pleasant flavour and aroma. However, fat is absorbed by the food increasing both the energy value and the risk of CHD and obesity. Fried food can be difficult to digest. It needs constant attention because, if overheated, the fat or oil could ignite.

(b) Many candidates found it difficult to discuss the choice and care of saucepans. Stainless steel was known to be a good choice and non-stick coatings on pans allow for easier cleaning. Some candidates noted that the metal used for saucepans should be a good conductor of heat to save fuel and that handles must be made from a material which is a bad conductor of heat, for example wood, to avoid burns. There should be a variety of sizes of pans depending on the size of the family and the use of the pan. Most candidates stated that pans should be dried thoroughly after washing and should be stored n a dry place to prevent rusting. They should be washed in hot, **not** warm, soapy water to remove grease.

(c) There were many excellent accounts on the disposal of kitchen waste. It was well-known that the bin should be emptied and washed daily and should be lined with a plastic bag to make waste disposal easier. It was often advised that waste foods should be composted and that fats and oils should not be poured down the drain otherwise the drain will block when the fat hardens.

Section C

Question 6

(a) (i) Most candidates were able to give reasons for preserving food. Preserved food lasts longer, micro-organisms are destroyed, foods can be enjoyed out of season or from other countries and it is a way of coping with a glut of food, avoiding waste. All other valid reasons were credited. Examples to illustrate the reasons given were often missing. It was hoped that candidates would state that, for example, canned meat or dried fruit keeps longer or that seasonal fruit like strawberries can be canned or frozen for other times of the year. Candidates should make sure that they have read each question carefully so that they are sure of the information required in the answer.

(ii) Answers to this part of the question suggested that candidates did not understand why each method of preservation identified would prevent decay. One well-explained point for each of the methods would have been adequate. The following examples should serve to illustrate the point.

Frozen food should be stored at -18 °C to prevent the growth of bacteria. A high sugar content of 65% in jam prevents the growth of bacteria or the high temperature of the jam while it is being made destroys micro-organisms. Finally, during drying water is removed; micro-organisms need water to multiply. Named examples of each of the methods stated were expected, according to the wording of the question.

(iii) Many candidates continue to confuse freezing and refrigerating. The terms cannot be used interchangeably. Freezing is for long-term storage of food; bacteria are dormant so do not multiply. Refrigerating is for the short-term storage of food; the temperature of the refrigerator slows down the rate of multiplication of bacteria but does not stop it. Food will still decay but at a slower rate.

It was hoped that candidates would note that the refrigerator must not be overloaded in order to allow cold air to circulate. Raw meat must be placed at the bottom so that juices do not drip onto other food causing cross-contamination. The need for clean covered containers was usually mentioned as was the importance of keeping fish and cheese away from eggs and milk to prevent them being tainted. There were many other possible points on the storage of food in a refrigerator and credit was given where appropriate. Explanations for the points made were expected. Some candidates limited their score for this question by giving facts without explanations.

(b) (i) The nutrients in red meat and their functions were well known.

(ii) There are many reasons for toughness in meat. They include the age of the animal the length and thickness of muscle fibres, the amount of use that particular part of the animal has been exposed to, the amount of connective tissue and an unsuitable method cooking. For example, a tough cut of meat could have been cooked by a dry method, giving no opportunity for the meat to tenderise. Possible ways of tenderising meat were well known. Candidates suggested hanging, beating, mincing and marinating in wine, vinegar or lemon juice before cooking. The use of enzymes such as papain or bromalin which partially digest protein were occasionally mentioned.

(iii) There were many detailed accounts of the changes which take place when meat is cooked by a moist method. Good answers noted that insoluble collagen changes to soluble gelatine. This allows the meat fibres to fall apart. The fat melts and the meat changes colour from red to brown. It shrinks in size and the extractives are squeezed out. Finally, the heat causes the protein to coagulate.

FOOD AND NUTRITION

Paper 0648/02

Practical Test

Key Messages

- To gain full credit in the Choice section candidates should choose a range of dishes which are sufficient and appropriate for the question set and should show a wide variety of skills.
- The Time Plan should show a logical sequence in the preparation of dishes and should include the required details of methods, times, temperatures, etc.
- It is essential for moderation that detailed annotation is provided which is relevant to the individual work of each candidate, particularly in the Method of Working and Results sections of the mark sheets.

General Comments

The majority of candidates produced work of a reasonable standard and many of the test questions were answered well. Centres usually arranged their work correctly with the practical test sheets in the right order and well labelled. Although many Centres included the correct mark sheets some Centres did not submit *all* the mark sheets as required. It is very important that each candidate has a Practical Examination Working Marksheet attached to their work. A Practical Examination Summary Marksheet should also be included to show the total marks for each section the work for every candidate at the Centre. Computer marksheets (MS1) should also have been included.

The practical test sheets should be marked by the teacher before the practical examination. Clear evidence of marking should be shown on every page of the work yet this was not always evident. Annotation should be completed on the Practical Examination Working Marksheet for every section of the work for each candidate and the comments should be specific to the work of each individual candidate. Some excellent and detailed annotation was seen but a number of Centres wrote brief, general comments which were similar for each candidate. These comments did not explain clearly why certain marks had been awarded. It is particularly important that there is good annotation in the Methods and Results sections of the work so that the Moderator at CIE can understand how the practical examination progressed. Clearly labelled photographic evidence of the results is not compulsory but can be very helpful in verifying the results. Some excellent well-labelled photographs were seen.

Candidates should be encouraged to read the questions carefully so that they can choose skilful dishes which answer the specific question set. It is also very important that the practical test questions and the mark scheme are studied by the teacher before starting to mark the work. Come Centres awarded marks which were too high when the dishes chosen did not answer the question correctly, when too few dishes were chosen or when the chosen dishes were low skill. The mark scheme states clearly that “dishes chosen should meet the requirements of the specific tasks”, “should show a variety of skills” and “maximum marks must be reduced for simple dishes”. As some Centres were not following these regulations it was necessary to make some adjustments to the marks.

In the Choice section dishes should be listed clearly for each part of the question and recipes should be written next to each named dish. Although many suitable dishes were chosen, some very simple dishes were prepared, e.g. jelly whip, salad, gingerbread, ice cream, etc. and these should not have been awarded full marks. Methods were sometimes repeated, e.g. frying, rubbing in, creaming, etc. and there was some repetitive use of main ingredients, e.g. minced beef and chicken. Occasionally main ingredients were missing from the recipe, e.g. yeast was missing in a recipe for bread dough. Some questions were not answered well, e.g. no decoration on the cake as required in **Question 4** and no whisked cake for **Question 8**. Vegetarian meals planned for **Question 5** were often unbalanced as no protein foods were included.

Many good time plans were seen which showed logical sequences of work, brief methods, cooking times and oven temperatures, times for dish washing and times for serving the meals. Other time plans were far too short with many of the required details missing. A number of candidates prepared each dish in turn, with no dovetailing, so that time was wasted waiting for dishes to cook. Sometimes dishes were placed in ovens to cook and the next work listed in the plan was the decorating/serving of these dishes which could not possibly be ready. Serving of the dishes was often a weak area in the plan. Candidates should allow time for decorating and serving the dishes including brief details of decorations or garnishes to be used. A clear order of serving the dishes should be shown particularly when meals are being served. Shopping lists were usually reasonable although some candidates did not describe ingredients accurately, e.g. a particular type of meat, fish, cheese, flour, etc. The type of food can be crucial to the success of the dish.

Some teachers provided very detailed explanations for the awarding of marks in the Methods and Results sections. Others simply stated that the methods were “good” and the results “looked good”. This did not really explain how the individual candidates worked or exactly how the dishes tasted or appeared when served. The mark scheme gives detailed guidance on the marking of these sections. Examiners should use this to help in making relevant comments and in awarding marks at the correct level according to the work done and the quality of the final dishes.

Comments on Specific Questions

Question 1

This was a popular question and candidates chose a good variety of main-course dishes using eggs. Some dishes included eggs as the main ingredient, e.g. scotch eggs or savoury flan, while others demonstrated the use of eggs for binding, thickening or glazing. Occasionally low skill dishes were prepared, e.g. egg salad, egg custard, scrambled eggs, etc. and these dishes should not have been awarded full marks. Meals were usually completed well.

Question 2

Candidates who chose this question usually answered well, with a good variety of skilful dishes. It is important in this type of question that candidates indicate clearly in the list of chosen dishes which of the listed ingredients is being used in each dish.

Question 3

This was the most popular question. Candidates prepared meals well, with a good variety of mainly skilful dishes. Sauces were always included as required, usually served with the main savoury dish and occasionally sauces were served with the dessert. Scones were prepared well, as were the dishes using fruit.

Question 4

A wide variety of dishes was prepared for the birthday party. Some skilful dishes included the preparation of pastries, cakes, bread dough etc. Some candidates prepared very simple dishes, e.g. sandwiches with bought bread or simple drinks. Occasionally dishes were prepared, e.g. spaghetti bolognese, which may have been difficult to serve/eat at a lively teenage party. Cakes were prepared and many were decorated well but occasionally no ingredients were included for decoration and no time was included in the plan for finishing the cake.

Question 5

This question was not always answered very well, particularly as many meals lacked protein for the vegetarians. The packed meals should have included both sweet and savoury dishes with a good variety of ingredients, with various skills and sufficient food for two adults. Often too few dishes were included and little variety was provided. The dishes for the evening meal should have been different in ingredients and methods from the packed meal eaten earlier in the day.

Question 6

This was one of the least popular questions. Candidates usually prepared a range of skilful dishes but it was not always clear which dish matched which piece of equipment. Care should be taken in this type of question to ensure that a mixture of sweet and savoury dishes is prepared and that a good variety of ingredients is used in the dishes. In some cases dishes were repetitive, e.g. two similar cakes.

Question 7

Three dishes were prepared as required but candidates did not always include good supplies of iron. The best sources of iron could have included red meat, liver, kidney, eggs, green vegetables, etc. Some reasonable two-course meals were prepared but sufficient accompaniments were not always included.

Question 8

Two-course meals which included a pastry dish were prepared well, the pastry usually being used for a sweet or savoury pie. On some occasions accompaniments were missing so the meals were not complete. The most popular sweet dish using a batter was pancakes, which were prepared well but could have included added skills with the preparation of a filling. Many suitable whisked cakes were prepared, usually swiss rolls. Occasionally cakes were incorrectly prepared by a different method.