

FOOD AND NUTRITION

Paper 0648/01

Theory

General comments

The range of marks achieved for this paper was very wide. Those candidates who were able to explain their answers and apply their knowledge when appropriate scored the highest marks. The poorest candidates relied on being able to recall facts but further information given in answers suggested a lack of understanding. When information is learnt by rote it is not usually possible to recall facts when the questions are worded in a different way. This was particularly apparent in the essay questions that make up **Section C**. Answers sometimes had little relevance because lots of information was written on a topic without careful consideration of what was actually being asked in the questions.

Candidates seemed to have had sufficient time to answer the required number of questions. There were few rubric errors. A small number of candidates answered both **Question 8** and **Question 9** instead of selecting one of them. Occasionally, candidates did not identify the **Section C** question being answered.

Scripts were usually well presented and handwriting was generally good although there were a few candidates whose writing was so small that it was very difficult to read. Teachers are urged to remind candidates of the need to write clearly at all times. Despite clear instructions on the front cover of the examination booklet not to use correction fluid many scripts showed that this instruction had been ignored. Incorrect work or work which should not be marked by the Examiner should have a neat line drawn through it; correction fluid is unnecessary.

Mark allocations at the end of each question or part question and the amount of space allocated for an answer are for the guidance of candidates. It should not be necessary to use additional answer paper or to fill margins with further information.

Section C questions were not well answered by some candidates. Questions were not read carefully so information was often irrelevant or was lacking depth and detail.

Comments on specific questions

Section A

Question 1

- (a) It was well known that carbon, hydrogen, oxygen, nitrogen, phosphorus and sulphur are the elements which combine to form protein.
- (b) Most candidates were able to give at least two functions of protein. It was usually noted that protein is required for growth and repairs, although many answers correctly identified the production of energy and the formation of hormones and enzymes.
- (c) Many candidates were unable to give a precise definition of High Biological Value (HBV) protein. Full marks were scored by those who were able to state that HBV proteins contain all the indispensable amino acids in sufficient amounts.
- (d) Meat, fish, eggs, milk, cheese and soya beans were known examples of HBV protein foods.
- (e) Low Biological Value protein lacks at least one indispensable amino acid. Few candidates were able to give this information.
- (f) It was well known that peas, beans, lentils, nuts and cereals provide LBV protein.

- (g) It was disappointing that only a few candidates were able to score full marks on the digestion and absorption of protein. Credit was given for naming enzymes, their sources and the end products of the breakdown of protein.

Candidates were required to demonstrate their knowledge of the absorption of amino acids in the ileum and to indicate that they are transported around the body in the blood.

- (h) There were few good accounts of the way the body deals with an excess of protein. Some candidates correctly noted that nitrogen is removed during deamination. The remaining fat is stored under the skin or around internal organs; this could lead to obesity or coronary heart disease (CHD). It was rarely noted that nitrogen is a component of urea and is carried to the kidneys to be excreted as urine.

Question 2

- (a) Most candidates correctly stated that calcium is important for the formation of bones and teeth, some noted its function in the clotting of blood but few referred to its importance for the efficiency of muscles and nerves.
- (b) Sources of calcium were well known. Named dairy products and green vegetables were the most frequently identified examples. The bones of canned fish were also known to supply calcium.
- (c) Although only one deficiency disease was asked for, candidates were given credit for mentioning rickets, osteomalacia, osteoporosis or tetany.

Question 3

- (a) Many candidates correctly noted that vitamin D is important for the absorption of calcium and for the formation of bones and teeth.
- (b) The sources of vitamin D were well known. Dairy products, oily fish, fish liver oils, eggs and liver were the most frequently given.
- (c) Most candidates were not able to explain why some groups of people were unable to make vitamin D from ultra-violet rays. It was anticipated that house-bound people would be identified because they do not go outside in the sun. Few, however, identified those who, for religious reasons, cover their bodies; even when they are outdoors the ultra violet rays cannot reach their skin. Similarly, those who live in polluted areas or are surrounded by high buildings cannot benefit from the sun's rays.

Question 4

There were many excellent accounts of the particular dietary needs of teenage girls. Nutrients were identified and reasons given. Protein, calcium, vitamin D, iron, vitamin C, carbohydrate and vitamin B were known to be important. Some candidates correctly noted that fat should be taken in limited amounts because it is associated with obesity and CHD if taken in excess.

Section B

Question 5

- (a) The nutrients in red meat were well known. Many candidates gained full marks.
- (b) The majority of candidates did not understand the reasons why meat may be tough. It was expected that answers would include the fact that tough meat comes from older animals which have muscles that have had a lot of movement.

Their muscle fibres are long and thick and are held together with large amounts of connective tissue. Sometimes meat is tough because it has been overcooked or has been cooked by an unsuitable method; sometimes it is the result of an animal being stressed before it is slaughtered.

- (c) Many candidates were able to gain maximum marks for identifying ways of tenderising meat during cooking. It can be cut into small pieces, sliced or scored, beaten with a hammer, hung, marinated in wine, vinegar or lemon juice, or treated with enzymes such as bromalin and papain.
- (d) There were few good accounts to explain how tough meat becomes tender during cooking. It was hoped that candidates would be able to state that a moist method of cooking should be used, for example stewing, braising or pressure cooking. The moisture penetrates between the muscle fibres causing the insoluble collagen to be converted into soluble gelatine, allowing the muscle fibres to fall apart.
- (e) Some candidates were not familiar with the use of processed soya to replace meat. Credit was given for any correct information, whether advantages or disadvantages. Soya is a HBV protein food so it includes all the indispensable amino acids. This makes it suitable for vegans since it is the only vegetable source of HBV protein. Owing to it being low in fat it is healthier than meat; meat contains saturated fat which is linked to CHD. Processed soya needs no preparation; it cooks quickly without shrinking and takes on the flavours of other ingredients. It is cheaper than meat, is easy to store because it is dehydrated and can be formed into sausages, mince or chunks. It is fortified with iron and vitamins from the B group and eliminates the risk of animal diseases like BSE or bird flu.

Some people, however, do not like the texture of processed soya; they are concerned that additives have been used to preserve, flavour and colour it and the long-term results of their use is not known. It needs to be soaked before it can be used and produces no aroma during cooking.

Question 6

- (a) Most candidates correctly identified three types of convenience foods, for example frozen, dried, canned and ready to eat. Appropriate examples were usually given. No credit was given for stating that packet food was a type of convenience food.
- (b) The advantages and disadvantages of convenience foods were well known and many candidates scored full marks for this part of the question. It was usually stated that convenience foods save time, effort and fuel, they are easy to prepare and cook and can be transported and stored easily. They are available in many varieties and allow families to enjoy dishes which otherwise may have been too complicated to prepare. They require few cooking utensils and generate little washing up.

They can, however, be expensive and portion sizes are often small. Nutrients may have been lost during processing and artificial colouring, flavours and preservatives are usually added. Convenience foods can be high in fat, sugar and salt and low in dietary fibre.
- (c) Most candidates named three pieces of electrical equipment which were labour-saving. They often mentioned processors, mixers, blenders and juice extractors and were able to give appropriate uses. Some named dishwashers, peelers and non-stick pans. Microwave ovens, deep fryers, electric kettles and pressure cookers, however, cannot be considered as being labour-saving.
- (d) It was well known that electrical equipment must only be used if hands are dry to prevent electric shocks. Some candidates correctly stated that those using electrical equipment must follow the manufacturer's instructions and must know how to use the equipment properly. Many answers warned of the dangers of frayed or bare wires and emphasised that repairs should only be carried out by a qualified person. Most candidates noted that the power must be switched off and the plug removed after use and that beaters and blades should only be removed when the power is off. Sometimes warnings were given about the careful handling required when washing the sharp blades of a processor. A number of answers included the instruction to avoid having flexes trailing where other people pass by in order to avoid trips and falls. No credit was given for points about the storage of electrical equipment since the question referred to its safe use only.

Question 7

- (a) Most candidates described the creaming method very well. Reasons were given for each step of the process and excellent scores were achieved.
- (b) A wide range of possible flavourings were suggested; all suggestions were considered and full marks were usually achieved.
- (c) Most candidates were able to explain some of the changes that take place when the cake is baking. They mentioned the production of carbon dioxide, the expansion of gases, the cake rising, browning, the formation of a crust on the outside and the development of an open texture. Better answers identified processes, for example dextrinisation, caramelisation, gelatinisation and Maillard browning. Many answers gave sufficient detail to be awarded full marks.
- (d) This part of the question required candidates to discuss convection and conduction with reference to baking the cake. Many answers were accounts each of those methods of heat transfer with no reference to the context of the question. It was expected that candidates would note that convection takes place through gases, for example the air in the oven which, when heated rises and helps to create convection currents. The heat of the oven passes to the solid cake tin and to the oven shelves which are good conductors of heat because they are made from metal. During conduction, heat is passed from one molecule to the adjoining molecule by vibration which generates heat. This heat passes to all parts of the cake beginning at the outside where the cake mixture touches the tin. Candidates seemed to lack understanding of these methods of heat transfer so answers were often muddled.

Section C

Question 8

This question was attempted by fewer candidates than **Question 9**. It was expected that candidates would explain the differences between fats and oils since this information would be helpful when discussing their different uses. Some answers gave information on the structure of saturated fats and unsaturated fats and gave named examples of each type. Most candidates were able to state that fats are solid at room temperature and usually come from animals, whereas oils are generally liquids and are mostly from plant sources. The varying hardness of fats often led to a discussion on the suitability of certain fats for pastry making and cake making. It was possible to identify many other uses of fats and oils.

Most candidates, however, gave few different uses of fats and oils. It was usually stated that fats could be used in pastry-making, cake-making and for frying. They can add colour, flavour and texture to dishes. Some candidates gave named examples to illustrate the uses identified, for example butter was known to impart a good flavour to cakes and to bread when spread, olive oil could be used for salad dressings and lard gave shortness to pastries. Credit was given to all relevant points whether uses, examples or additional information. For example, the importance of the decomposition temperature of different fats and oils when considering their suitability for frying is credit worthy.

Question 9

This was a popular question and most of those who attempted to answer it gave a creditable amount of valid information.

The nutritive value of eggs was usually discussed. Candidates named nutrients and often gave one or more functions of the nutrients identified. The storage of eggs was mentioned by most candidates with varying degrees of detail. Better answers gave precise information on the effect of heat on eggs, noting relevant temperatures for the coagulation of egg white and egg yolk.

There were many excellent accounts of the different uses of eggs. The majority of candidates gave many uses and they were usually able to give a good example of each use identified. Additional relevant information was always credited. Some candidates noted that eggs could be cooked in many ways and that they are often given to children or invalids because they are easy to digest. Many gave details on the result of overcooking eggs or of boiling eggs for too long.

There were many high scores for this question, demonstrating that a large number of candidates had a sound level of knowledge and understanding of this topic.

Each of the questions in **Section C** carries 15 marks. It is the responsibility of each candidate to choose a question and plan their response. High scores, however, can only be achieved if answers contain accurate, detailed information and are supported with as many relevant facts as the candidate can give.

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Paper 0648/02

Practical

General comments

Many candidates presented work of a reasonable standard which was well organised and detailed. The majority of Centres correctly sent the top copies of the preparation sheets together with the correct mark sheets to CIE. A small number of Centres sent both copies of the work to CIE when the second copy (pink) should have been retained at the Centre. It is very important that all the correct mark sheets are included with the work but on some occasions mark sheets were missing.

Some Centres provided detailed marking and excellent annotation to accompany the work while others simply made very brief, general comments about the work of their candidates. All work should show evidence of marking and it is not sufficient to allocate marks without supporting reasons. This is particularly important in the methods and results sections in order to justify the marks awarded when the work completed in these sections is not seen by the examiner at CIE. The practical test questions and the mark scheme should be studied carefully before beginning to mark the work. On some occasions candidates were awarded full marks for dishes which did not answer the question set or were of very low skill. The mark scheme for both methods and results clearly states that "maximum marks must be reduced for simple dishes involving little skill". As some Centres were not following this regulation it was necessary to make some adjustments to the marks.

In the choice section it is important that candidates list the dishes clearly for sections **(a)** and **(b)** and the dishes which form part of a meal should be listed in the order of serving the meal. Recipes with exact amounts and types of ingredients should be written next to the name of the chosen dish. Candidates named dishes well, although which dishes were to be served for the meals were not always clear. Great care needs to be taken by candidates in answering the question set so that the correct types of dishes are chosen and so that the dishes will show a variety of skills, ingredients, cooking methods, etc. Some candidates did not answer questions correctly, e.g. making a creamed cake when the question specifically asked for a whisked cake. A number of planned meals had accompaniments missing, e.g. vegetables, sauces, etc. or were unbalanced, e.g. too much carbohydrate. Many low skilled dishes were made, e.g. mousse, salad, egg custard, sandwiches, etc. Some candidates chose to use the same ingredients in several of their dishes, e.g. cheese, while others chose dishes which involved repetitive methods, e.g. chopping onions several times, frying several dishes, etc. Marks should have been deducted on these occasions.

Many reasonable time plans were seen showing brief methods, cooking times, oven temperatures, cleaning times and occasionally some serving details. Candidates need to take care that sequences throughout the work are well thought out so that foods are given adequate cooking/cooling time before the next process, e.g. decoration of cakes. "Prepare..." and "make..." are not sufficient detail for methods and "cook..." does not give detail about times and temperatures. Some candidates did not consider that ovens would need preheating or that cake tins would require preparation before starting to cook. On a few occasions, oven management was poor when candidates attempted to cook several dishes at different temperatures in the same oven at the same time.

Serving of dishes was one area which needed particular attention. Dishes should be served towards the end of the time of the test and if a meal is being served the dishes should be served hot and in the correct order of the courses. There should be some indication of garnishes, decorations, serving dishes, etc. which are to be used. Many candidates simply served their dishes as soon as they were ready and stated "serve..." with no further details.

Shopping lists were usually complete but candidates need to ensure that ingredients are described accurately, e.g. a particular type of meat, cheese, flour, etc. as this can be crucial to the success of the dish.

Some examiners provided very good explanations for the awarding of marks in the method sections of the work while others simply stated that the methods were “good” and the results “looked good”. The mark scheme gives detail on the marking of these sections and this should be studied to help examiners in making relevant comments and 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 choice of question and many candidates made a good variety of dishes containing cheese, eggs or milk for the vegetarian meal. On some occasions accompaniments were missing and sometimes there was insufficient protein in the meal. Cakes and scones were made but some candidates did not use the whisking method to make the cake as required by the question.

Question 2

A variety of dishes were prepared using the equipment listed and two-course meals were completed well.

Question 3

This question was popular but many candidates seemed to forget that the meal should contain a good variety of foods which pack well without damage and which are filling enough for the manual worker’s midday meal. Dishes for the evening meal were sometimes repetitive of the midday meal in methods or choice of ingredients.

Question 4

Vegetable dishes were prepared but sometimes contained the same vegetables in each dish and did not always show a good variety of skills. Meals were completed and were generally suitable for children.

Question 5

Many candidates answered this question and usually prepared reasonably skilful dishes to illustrate baking and stewing but chose more simple dishes for frying. Meals were served but often needed additional accompaniments.

Question 6

Five dishes were prepared for the school event but many were simple to make and did not always include a variety of ingredients. Some candidates failed to decorate the cake as required by the question.

Question 7

Meals chosen for the visitors were usually suitable and were served with a fruit drink. Two dishes were made using cheese but often the different types of cheese were not named.

Question 8

Two-course midday meals were prepared and a good variety of batter dishes were included, usually sweet ones. Cakes and pastry dishes were usually suitable and prepared well.