

FOOD AND NUTRITION

Paper 0648/11

Theory

Key messages

- All questions should be read carefully, several times, to ensure that all parts are answered fully.
- It is important that full explanations are included when required.
- Questions which require discussion should include many different facts, with detailed reasons and examples to illustrate the points made.

General comments

Candidates presented their work well and usually attempted all the required questions. The shorter, factual questions in **Sections A** and **B** were answered well but care should be taken to include clear explanations where these are required. Answers to questions where discussions or informative paragraphs were required were not answered so well. These answers would benefit from being more structured so that sufficient relevant information is included. Many candidates included planning notes before the **Section C** questions were answered. Planning often helps to structure the answers better and to ensure that relevant material is presented in a concise way. Candidates should take care to read all the questions carefully to ensure that what they write does actually answer what the question requires.

Comments on specific questions

Section A

Question 1

- (a) Candidates were able to give three correct functions of protein, usually growth, repair and energy. Very few mentioned the role of protein in the production of hormones, antibodies or enzymes.
- (b) The elements in proteins were well known.
- (c) Many answers were correct but incomplete. HBV proteins contain all the essential amino acids, this was usually given, but candidates did not write that these should be in the correct proportions.
- (d) Candidates were able to list a good variety of HBV protein foods.
- (e) Most candidates knew that LBV proteins are lacking in at least one essential amino acid.
- (f) Good sources of LBV protein were given, usually different types of pulses or different cereals.
- (g) Some candidates explained the term “complementary proteins” well, while other answers were confused. These proteins are combinations of two protein foods, two LBV proteins or one LBV and one HBV protein. When eaten together the deficiency of essential amino acids in one food is made up by the other food.
- (h) Good examples of complementary proteins could have included beans on toast, lentil soup with bread, etc. There were some good answers but a number of candidates listed single foods only, e.g. beans.

Question 2

- (a) Answers were good on the digestion of protein. Candidates described correctly the different parts of the digestive system, the enzymes in each area and their corresponding reactions. Absorption details were also included.
- (b) Deamination of protein was understood well as most candidates explained the process of removing nitrogen (in the liver) and the excretion of urea through the kidneys as urine.

Question 3

- (a) The functions of calcium were usually given correctly as growth and maintenance of bones and teeth, blood clotting and the functioning of muscles and nerves.
- (b) Milk, cheese, yoghurt and green vegetables were the usual correct sources given.
- (c) Rickets was the most popular correct answer.
- (d) Usually only one correct symptom, i.e. “bow legs” was given, when two symptoms were required. Knock knees, pigeon chest or deformed leg bones could have been alternative correct answers.
- (e) The role of Vitamin D in the formation and maintenance of bones and teeth and in the absorption of calcium was usually given but the absorption of phosphorus was rarely mentioned.
- (f) Four sources of Vitamin D were listed well.
- (g) Candidates explained that iodine is required to make the hormone thyroxine in the thyroid gland but did not usually explain its function in controlling the rate at which energy is used.
- (h) The deficiency disease of goitre was known and that it causes swelling of the thyroid gland at the base of the neck.

Question 4

Many candidates correctly suggested a variety of ways of encouraging good eating habits in children, e.g. regular meal times, making the meals attractive, introducing new foods, not snacking between meals, etc. Lists of nutrients were not required.

Section B

Question 5

- (a) The term “coagulation” was usually correctly explained as the effect of heat on proteins which causes irreversible chemical changes in foods resulting in the food hardening or setting. Examples were given but were not always specific, e.g. “egg” should have been given as “boiled egg”. Other examples could have been quiche, baked egg custard, etc.
- (b) Some candidates answered well, explaining in detail the fermentation of yeast in bread making.
- (c) There were many very good explanations of gelatinisation as the effect of moist heat on starch in the making of sauces. Other candidates incorrectly described coagulation or dextrinisation.
- (d) A good number of candidates knew that hydrogenation is the addition of hydrogen to unsaturated/liquid fats to produce saturated/solid fats in the manufacture of margarine.
- (e) Pasteurisation of milk was generally explained well, including times and temperatures for the process.

Question 6

- (a) Nutrients in fruit were listed fairly well but examples were not always correct and some examples of vegetables were given, when fruits were required.
- (b) Varieties of ways of using fruit were given, e.g. drinks, hot and cold desserts, cakes, snacks, etc. Examples were given but on many occasions candidates did not specifically name the fruit to be used.
- (c) Other correct reasons given for using fruit in the diet included the high water content, NSP, the many varieties of colour/flavour/texture which could be incorporated in meals, ease of cooking, etc.

Question 7

- (a) Correct methods of preparation, cooking and serving green vegetables were given but explanations were often vague. For each process the possible loss of Vitamin C could have been explained fully, e.g. loss by solubility in water, destruction by heat, oxidation, etc. Some candidates discussed the storage of green vegetables, which was not required in this question.
- (b) This question was answered well. Candidates gave many advantages of frying including that it is quick, provides a crisp texture, makes food go brown, etc. Disadvantages included adding fat to the food, which would give health issues linked to heart disease / obesity, dangers of frying, constant attention required, etc.
- (c) Candidates answered at length but did not always answer well. There was some good discussion on the use of convenience foods, microwave ovens, planning ahead, etc. Some candidates incorrectly discussed saving fuel, saving money and saving shopping time rather saving time in preparation and cooking.

Section C

Question 8

- (a) Many candidates chose to answer this question but did not always answer fully. The preparation of foods included personal and kitchen hygiene and this was answered reasonably well, although candidates did not always give good reasons for the points made. On the cooking of food, candidates regularly wrote "cook thoroughly" but did not explain how this could be achieved with correct cooking times, temperatures and ways of checking that the food is well cooked. The storage of food was discussed and some good points were given. Occasionally the information was of a very general nature without naming specific foods and their specific storage places. A number of candidates discussed preservation methods which were not required in this question.
- (b) There were some very detailed, correct answers for this question but the majority did not answer well. The gases responsible for raising mixtures should have been named, i.e. air, carbon dioxide and water vapour. Ways of introducing these gases into baked products should have been explained clearly, e.g. rubbing in fat to flour, whisking eggs, sieving flour, etc. with examples of their use. The use and reaction of bicarbonate of soda, used alone or with cream of tartar or as a constituent of baking powder, should have been explained, as well as the use of yeast in bread making. The production of water vapour in batters should also have been included. Many answers were too general without clear explanations or examples

FOOD AND NUTRITION

Paper 0648/12

Theory

Key messages

- It is important that all questions are read carefully before starting to write the answer.
- Discussions, explanations or informative paragraphs require more than a brief list of statements.
- Essay questions would benefit from planning and re-reading the question several times to ensure that all sections are answered in detail.

General comments

Candidates answered the questions in a similar way to that of previous years. On the whole most questions were attempted and the work was well presented. The shorter questions were often answered well when candidates were required to make brief statements, name nutrients, give sources of nutrients, name deficiency diseases etc. Candidates did not always answer so well when the questions required lengthier information or discussions. It is important in these questions to include a good number of facts and to give full explanations for each point made. Candidates should read the questions very carefully to ensure that they answer fully.

Comments on specific questions

Section A

Question 1

- (a) Candidates answered well, listing carbohydrate, fat and protein.
- (b) There were some good answers but sometimes the units of measurement, i.e. kilocalories or kilojoules, were missing.
- (c) Some candidates answered well while others stated “energy required” or “amount of food eaten” without explaining that this should be balanced with the amount of energy used.
- (d) Candidates usually listed different circumstances when energy requirements could vary, e.g. age, activity, gender, climate, etc. but did not always give good reasons why the energy requirement could be more or less. Energy for growth, particularly for children, could have been given or the requirement of extra energy for manual workers.
- (e) The results of eating too much energy-giving food were usually given as obesity, coronary heart disease, hypertension, diabetes, etc. but candidates did not always explain that the extra energy would first be converted to fat and stored under the skin or around the internal organs.

Question 2

- (a) Liver, red meat or eggs were the usual correct answers given for animal sources of iron.
- (b) Most candidates named green leafy vegetables as plant sources of iron. Other sources could have included cocoa, dried fruit, pulses, etc.
- (c) Haemoglobin was the usual correct answer given.

- (d) Candidates answered well explaining the role of haemoglobin in obtaining oxygen from the lungs and transporting the oxygen to the cells for cell respiration and the release energy.
- (e) Anaemia was usually given as the correct answer.
- (f) Candidates gave at least three of the symptoms of anaemia, i.e. pale skin, tiredness, weakness, headache or dizziness.

Question 3

- (a) "For clear skin", "for growth" and "to heal wounds" were the usual correct answers given. Occasionally candidates repeated for "the absorption of iron" which was already in the question.
- (b) *Good* sources of Vitamin C were required and many candidates correctly named citrus fruits while others just wrote "vegetables" when *green* vegetables would have been a better source.
- (c) Scurvy was usually named correctly.
- (d) Very few candidates wrote that it is important to take in Vitamin C *daily* as the body does not store this vitamin.

Question 4

- (a) There were some very good answers to this question with correct details of parts of the digestive system, enzymes in the correct places and correct reactions with different nutrients.
- (b) Absorption was often explained well with descriptions of how the different nutrients pass through the villi to be dissolved in the blood and carried around the body.

Section B

Question 5

- (a) Answers to this question often lacked detail and many candidates discussed the use of a freezer rather than a refrigerator as required. "Keeping food longer" or keeping food "cool" was very simple and not in sufficient detail to explain how the low temperature in a refrigerator slows down the action of bacteria to delay the rate of deterioration. Correct use of a refrigerator could have been explained. Points such as describing how and why certain foods should be covered, stating which parts of the refrigerator are most suitable for particular foods, not overloading the refrigerator, not leaving the door open, keeping the refrigerator clean, etc. could have been explained in more detail.
- (b) This was not answered well. Candidates often mentioned the use of fat for frying or fats in the preparation of cakes but little more. Many more uses could have been given such as fats for spreading, adding colour, adding flavour, shortening pastry, greasing tins etc. Examples of fats should have been included and examples of foods in which they are used.
- (c) Candidates gave a few advantages and disadvantages of steaming, such as the ability to cook several foods together, the retention of nutrients, the long time taken to cook the foods and the lack of texture. Other points could have been included such as easier digestion, saving of fuel, kitchen filled with moisture, etc.

Question 6

- (a) Reasons for serving sauces were usually listed well, e.g. to add colour, flavour, moisture, etc. to foods but often the examples given did not name actual sauces.
- (b)(i) There were many excellent descriptions of the method of making a cheese sauce by the roux method. Occasionally candidates described making the sauce by the all-in-one method.
- (ii) Macaroni cheese was the most popular named dish which includes a cheese sauce. Many other dishes were named but some did not clearly include a cheese sauce, e.g. baked potatoes and quiche.

- (c) This was answered well as candidates usually suggested “use low fat spread”, “use skimmed milk” or “use less cheese”.
- (d) “Adding the milk too quickly” and “not stirring the sauce” were the usual correct reasons given for a lumpy sauce. Candidates could have specified that the sauce needs stirring both when the cold milk is added and also when the sauce is boiling.

Question 7

- (a) Very little information was given on the importance of food packaging. Some candidates incorrectly wrote about different types of processed foods or preservation methods. Many points could have been given including the protection of foods from damage, easier storage, easier transportation, protection from bacteria, etc.
- (b) Good lists of the information on food labels were given but there was little discussion on how this information could be useful when choosing products.
- (c) Additives which give the food nutrients, colour, flavour or help to preserve the foods were mentioned. The use of additives to improve texture, to act as emulsifiers or antioxidants could have been given. The importance of including additives in very small amounts and their potential health risks could have been other discussion points.

Section C

Question 8

- (a) Candidates gave good reasons for choosing to follow a vegetarian diet such as religious beliefs, family traditions, dislike of animal flesh, objections to animal slaughter, etc. Candidates could then have described the different types of vegetarians and explained how they could obtain HBV proteins, e.g. lacto vegetarians obtaining their HBV protein from milk. Most suggestions for including HBV proteins involved the use of soya and soya products. A few candidates described the use of complementary proteins and gave suitable examples. Other problems in the diet of vegetarians were not discussed well. These could have included suggestions of foods to replace other missing nutrients, e.g. carrots for Vitamin A, green vegetables for iron, etc. Candidates could also have discussed problems such as lack of variety, bulkiness of the diet, lack of flavour, etc.
- (b) Candidates were able to give good lists of the nutrients in milk but to answer fully, the value of these nutrients in the body, i.e. functions, should have been given. Many methods of treating milk were named, with brief details on the processes involved. In the last section candidates were able to list the dairy products correctly, i.e. butter, cream, cheese and yoghurt. However there were few explanations of how the milk was processed into the various products to enable the foods to keep longer as required by the question.

FOOD AND NUTRITION

Paper 0648/13

Theory

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- (d) Candidates usually listed different circumstances when energy requirements could vary, e.g. age, activity, gender, climate, etc. but did not always give good reasons why the energy requirement could be more or less. Energy for growth, particularly for children, could have been given or the requirement of extra energy for manual workers.
- (e) The results of eating too much energy-giving food were usually given as obesity, coronary heart disease, hypertension, diabetes, etc. but candidates did not always explain that the extra energy would first be converted to fat and stored under the skin or around the internal organs.

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- (b) Candidates were able to give good lists of the nutrients in milk but to answer fully, the value of these nutrients in the body, i.e. functions, should have been given. Many methods of treating milk were named, with brief details on the processes involved. In the last section candidates were able to list the dairy products correctly, i.e. butter, cream, cheese and yoghurt. However there were few explanations of how the milk was processed into the various products to enable the foods to keep longer as required by the question.

FOOD AND NUTRITION

Paper 0648/02

Practical

Key Messages

- It is important that candidates read the questions carefully to ensure that all required dishes, ingredients or methods are included.
- A good variety of dishes with a range of skills should be chosen.
- It is essential that the Time Plans include details of methods, times and temperatures and should present a logical sequence in the preparation of dishes.
- Examiners should provide detailed annotation which is relevant and specific to the work of each candidate.

General comments

Many candidates presented a good standard of work with some excellent results. The planning sheets were usually arranged in the correct order and were mainly completed correctly. Most Centres completed the mark sheets well and included these with the work of their candidates as required. It is very important that the marks are transferred correctly from the marks on the work onto the Practical Examination Working Marksheets and then the final totals onto the computer mark sheets (MS1). On a few occasions there were discrepancies when marks were different in different places so it was difficult to see exactly how many marks had been awarded. It is important that the marks are independently checked as there were a number of errors.

The Examiner should mark the planning sheets before the practical examination and marks and annotation should be completed in the Choice section. It was evident from some of the comments that some Examiners were only marking this section after the practical test and this should not be the case. The Method section should be marked during the practical cookery and appropriate comments should be written on the mark sheet as the work progresses. The Results section should be completed when all the dishes have been served and have been examined and tasted. Detailed comments should explain clearly why certain marks have been awarded in each section. Some Examiners were writing very brief, general comments which did not relate to the specific dishes completed by each candidate.

It is very important that the Moderator at CIE can understand how the practical examination progressed so that marks can be verified. Photographic evidence of the results is not compulsory but is helpful in confirming the marks awarded. Some Centres provided excellent, clear photographs of results showing some very good dishes and suitable methods of serving. A few Centres sent many unnecessary photographs of the cookery room in which the candidates were working. One photograph giving the name of the candidate and showing all the final dishes (with labels) as they were served would be adequate.

It is very important that candidates study the questions carefully to ensure that they are answered correctly and include all the required dishes, specific methods, ingredients, etc. On some occasions, candidates made only one course of a meal when two courses were required. Some candidates failed to include the use of a whisk (**Question 2**) or made a cake by a method which was not the creaming method as required (**Question 6**). Examiners should make themselves familiar with the questions and the mark schemes before starting to mark the work so that marks are awarded correctly. Full marks should not have been awarded when candidates made incorrect or incomplete choices and so did not answer the question well.

In the Choice section candidates should list the chosen dishes clearly for parts **(a)** and **(b)** of the question and should write clear recipes alongside each dish. Some candidates chose very simple dishes, e.g. toasted sandwiches, rice pudding, grilled chicken, baked potatoes, etc. and these should not have been awarded full marks. Ingredients should be described clearly. Simply writing "fish", "cheese", "flour", "fat" does not indicate the types required and should not be awarded full marks in the recipe section. Repetitive methods should not be used, as this does not show "a variety of skills" as required.

There were some detailed time plans showing all the dishes being prepared and cooked in a sensible sequence for serving hot at the end of the test. This is the most difficult part of the plan as candidates should aim to serve all the dishes for the meals hot and in the correct order of the courses towards the end of the test. Dishes should not usually be prepared each in turn, one after the other, as the time while one dish is being cooked could be used for the preparation of another dish and the first dish could be completed later. This is “dovetailing” the preparation and should be used throughout the test to make the best use of the time allowed. Some candidates worked in this way while others did not. A few candidates prepared hot dishes early in the test and were then either keeping these dishes hot for a long time or reheating the dishes in a microwave. This is not to be recommended.

Methods should be included in the time plan such as rubbing-in, creaming, etc. and just writing “make...” is not sufficient. Cooking time and oven temperatures should be included for all dishes but on a number of occasions these were missing. Serving details should be given, such as the sequence of serving or the garnishes/decorations to be used and simply stating “serve all dishes” is not adequate. Shopping lists were generally accurate, listing all the ingredients required in the correct amounts.

Comments on specific questions

Question 1

Many balanced two-course meals were prepared which were suitable for two schoolboys. A variety of biscuits were made by the correct method and there was a good variety of different types of dishes which included sauces as required.

Question 2

In this type of question candidates should ensure that all the required equipment has been used. A number of candidates did not use a whisk as required although the frying pan and grater were used correctly. Savoury pastry dishes were prepared well as were a variety of steamed sponge puddings.

Question 3

One source of dietary fibre / NSP, usually vegetables, was included in the meal but candidates rarely added any other good sources. Extra NSP could have been included by using wholemeal flour, wholegrain rice, fruit, etc. Biscuits made by the melting method and scones were usually prepared well.

Question 4

This was a popular question and a number of candidates prepared a good selection of savoury and sweet dishes which showed a variety of skills. A few candidates, however, chose some very simple dishes, e.g. sandwiches and drinks, which demonstrated few skills.

Question 5

Midday meals which included good supplies of calcium were prepared well. Candidates usually included cheese and milk in their dishes and a popular choice was macaroni cheese. Small cakes and biscuits were usually well made although occasionally there was repetition in methods.

Question 6

Three different protein foods were used to make different dishes but on some occasions the dishes were not very skilful, e.g. grilled chicken. Some suitable cakes were made by the creaming method and these were often decorated. Dishes which included fruit were often low skill, e.g. fruit salad, when candidates could have incorporated the preparation of fruit with another skill, e.g. pastry making.

Question 7

This was the least popular question. Low fat foods could have included white fish, chicken, fruit or vegetables and these could have been prepared by low fat cooking methods, e.g. steaming, baking etc. Savoury and sweet dishes were prepared for the packed meal but sometimes these were low skill, e.g. sandwiches.

Question 8

The five ingredients were used to prepare five dishes as required. Various methods were used to prepare a range of mainly skilful dishes but occasionally candidates prepared simpler dishes, e.g. lemonade, when a much more skilful dish, using lemons, could have been made, e.g. lemon meringue pie.