

FOOD AND NUTRITION

Paper 0648/01

Theory

General comments

There was a wide range of marks gained in this paper. However, many candidates achieved high scores, indicating a sound knowledge and understanding of the subject and an ability to apply that knowledge to a range of questions. Explanations and examples were usually given where required although weaker candidates tended to give facts without further information. Their answers were often very brief and essays showed little or no evidence of planning.

Candidates seemed to have had sufficient time to answer the required number of questions. There were few rubric errors. Handwriting was generally good although in one or two instances writing was very small and difficult to decipher. Scripts were neatly presented and 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

Most candidates were able to give a good definition of the term "balanced diet". An appropriate definition is that it is a diet that contains all nutrients in the correct proportion.

Question 2

- (a) Although there are six elements that combine to form protein - carbon, oxygen, hydrogen, nitrogen, phosphorus and sulphur - candidates were able to score full marks by identifying any four of them.
- (b) Four functions of protein were asked for and most candidates were able to list growth, repair, maintenance and energy; some candidates correctly noted that protein is important for the manufactures of enzymes, hormones and antibodies.
- (c) A definition of High Biological Value protein must include the fact that all indispensable amino acids are present.
- (d) The only examples are meat, fish, milk, cheese, eggs and soya.
- (e) Low Biological Value protein lacks at least one indispensable amino acid. Many candidates were unsure of this so were often unable to distinguish between HBV and LBV protein.
- (f) Cereals, pulses, nuts and gelatine are examples of LBV protein. Credit was given for naming examples of cereals, pulses and nuts.
- (g) There were many excellent accounts of the digestion and absorption of protein. Credit was given for identifying enzymes, the part of the digestive tract in which each one of them works, and the name of the digested product at each stage. Amino acids were usually known to be absorbed by blood capillaries in the villi that are found in the walls of the ileum.

Question 3

- (a) Most candidates were able to state that calcium is used for the formation of bones and was less well known that calcium is important for the clotting of blood and for the function of nerves and muscles.
- (b) Many candidates correctly identified the sources of calcium. The most frequent answers are milk, cheese and yoghurt. Bread and green vegetables were seldom mentioned.
- (c) Most candidates knew that calcium deficiency could result in rickets or osteomalacia.
- (d) The symptoms of rickets were known to be weak bones which bend under the weight of the body causing bow legs and knock-knees. The skull is often fragile. Those suffering from osteomalacia have brittle bones that fracture easily.
- (e) Most candidates correctly stated that vitamin D helps the body to absorb calcium.
- (f) It was well known that milk, cheese and butter are good sources of vitamin D and that oily fish, fish liver oil and eggs provide valuable amounts.

Question 4

- (a) Candidates were usually able to give good reasons for the reduction of saturated fat in the diet. Saturated fat is associated with cholesterol which is deposited on the walls of arteries, narrowing and sometimes blocking them. This can lead to coronary heart disease, hypertension, and strokes. Excess fat is stored under the skin and around internal organs and leads to obesity. Credit was given to every correct fact given so those candidates who gave detailed answers generally scored full marks.
- (b) This part of the question required candidates to suggest ways to reduce fat in the diet. This gave the opportunity to relate theoretical knowledge to practical situations. Many found this difficult. It was expected that mention would have been made of reducing the amount of red meat in the diet, the need to trim excess fat from meat and the recommendation to avoid fried foods. Foods that contain fat, for example pastries, cakes and chocolate should be eaten in moderation and low fat alternatives to cheese, butter and yoghurt should be chosen.

Question 5

There were many excellent accounts of the special nutritional needs of young children, indicating knowledge and understanding of the topic. Candidates were usually able to give sound reasons for the nutrients mentioned. It was known that protein is needed for growth, calcium helps to build strong bones and teeth and vitamin D helps the body to absorb calcium. Iron is needed for the formation of red blood cells; vitamin C helps in the absorption of iron. Starch is important for the production of energy. Fat also provides energy and since it is a more concentrated source some fat should be included in a young person's diet because it is less bulky than starchy food. Some candidates correctly noted that sugar should be avoided because it can lead to tooth decay. No credit was given for suggesting sources of the nutrients mentioned since this was not asked for in the question.

Section B**Question 6**

- (a) It was expected that candidates would be able to give four different reasons for serving sauces. Sauces add colour, flavour and moisture to meals; they provide a contrasting texture and add interest to a dish. Sometimes sauces counteract the richness of a particular dish, for example apple is served with roast pork and orange sauce with roast duck. Each different reason and each example to illustrate the given reason was credited.
- (b) Many candidates were able to give excellent accounts of the making of cheese sauce by the roux method. Marks would have been gained for noting that flour and margarine are mixed together over a gentle heat. The mixture is stirred with a wooden spoon. The pan is removed from the heat and the milk is added gradually, stirring well between each addition of milk. The pan is returned to

the heat and the sauce is boiled for three minutes, stirring all the time. Finally the gratin is added off the heat. Reasons for each stage of the process should have been given.

- (c) There was a wide range of examples of dishes that included cheese sauce. The most popular answers were macaroni cheese, lasagne, cauliflower cheese, pasta bake and eggs au gratin.
- (d) It was well known that sauce will be lumpy if it is not stirred when milk is being added and when it is being boiled. A number of candidates correctly noted that lumps could occur if liquid is added too quickly or if the pan is not removed from the heat before the addition of milk.
- (e) Many candidates gave three ways to reduce the amount of fat in the sauce. Low fat spread could be used, skimmed milk contains little fat, and less cheese or margarine could have been used. Replacing milk with water or using a smaller quantity of milk were not appropriate suggestions.

Question 7

- (a) The importance of cereals was generally well understood. Cereals are cheap, easy to grow, transport and store, and can be used in a variety of ways in both sweet and savoury dishes. The majority of candidates noted that cereals are a source of carbohydrate which is important for energy. Credit was given to those who stated that whole grain cereals are a valuable source of Non-Starch Polysaccharide.
- (b) Candidates were usually able to name four different cereals. Some answers listed both corn and maize although are different names for the same cereal.
- (c) It was usually stated that cereals should be kept in a cool, dry place to prevent the formation of mould. Most candidates mentioned that regular checking is important and that stocks should be used in rotation; old supplies must not be mixed with new. There were many valid points and all were credited. Reasons for the advice given were also given credit.
- (d) Many candidates were unable to identify three different types of flour. Appropriate answers would include plain flour, strong flour, self-raising flour, wholemeal flour, wheat germ flour and brown flour. Credit was given to those candidates who named cornflour. The uses of each of types of flour mentioned were usually well known. Facts about different flours were often very vague. It was expected that mention would have been made of the gluten content in strong flour, the baking powder in self-raising flour and the NSP in wholemeal flour. Better answers included information on the extraction rate of different types of flour and commented on the shorter shelf-life of wholemeal flour due to the fat in wheat germ becoming rancid.

Question 8

- (a) The majority of candidates were able to identify some of the reasons for preserving food.

Preservation allows food to be transported, foods last longer so wastage is reduced, and foods can be enjoyed out of season so meals can be more varied. Foods can be preserved in many ways and is useful in emergencies. Most candidates were able to explain that micro-organisms are destroyed during most methods of preservation so food spoilage is prevented.
- (b) (i) This part of the question was poorly answered. Candidates often failed to appreciate the difference between refrigeration and freezing so many answers were confined to the storage of food in the refrigerator. The most frequently given rule for freezing food at home was that foods should be wrapped before storage; few candidates were able to give a reason for this. It was expected that candidates would know that foods should be "fast frozen" to prevent the formation of large ice crystals within cells. This causes damage to cell walls and spoils the texture of food when thawed. A head space should be allowed when freezing liquids to allow for expansion. It was rarely noted that vegetables should be blanched to destroy the enzymes which cause spoilage and that air should be removed from packages to prevent the surface of the food from drying.
- (ii) Few candidates knew that the temperature for storing food in a domestic freezer is -18°C .

- (iii) It was well known that freezing delays food spoilage because bacteria are dormant at low temperature in the freezer therefore they are unable to multiply. Few answers contained further information. It was hoped that candidates would be able to explain that because the water content of food is frozen it is unavailable to bacteria. They require moisture for growth so growth is prevented. Bacteria also need warmth; the temperature in the freezer is too low. In addition, at low temperatures enzymes are ineffective.
- (iv) A frozen food label should give the name of the food, the date of freezing and the quantity or the number of portions contained. The 'best before' date could be given as could any special points, for example the amount of added sugar.
- (v) Candidates rarely gave reasons for the types of packaging suggested. Credit was given for noting that plastic bags and plastic boxes are suitable. Aluminium foil, greaseproof paper and thin polythene are also used but additional information was seldom given. Better candidates were able to explain that packaging should be waterproof and should be strong enough to prevent damage. Square containers are easier to stack and are more economical of space. Credit was given for mentioning that all packaging and containers must be sealed tightly to prevent the entry of air and the evaporation of water. All valid information was credited, whether it was examples of packaging or explanations for its use.

Section C

Question 9

Many candidates chose to answer this question but there was little evidence of planning. Questions in Section C of the paper give candidates the opportunity to interpret questions and demonstrate their knowledge and understanding of particular topics. The focus of this particular question was economy of money, time and fuel.

Candidates must select appropriate information and tailor their answer to the question. It is essential that answers give facts, explanations and examples where appropriate.

Most candidates gave several examples of ways to save money including buying foods in season, shopping in markets and growing foods where possible. Bulk buying was suggested, as was the advice to reduce the use of convenience foods. Few answers referred to the use of cheaper sources of protein foods, for example cheese, eggs and tough cuts of meat, which can be tenderised by moist cooking methods. Some candidates noted that waste must be reduced by making use of left-over foods and by cooking only the amount of food needed.

Ways of saving time when planning, preparing and cooking food were often limited to using the microwave oven or pressure cooker. A number of candidates wrote at length on making a time plan. Time plans do not save time; they are concerned with time management. It was expected that the use of convenience foods, labour-saving equipment and quick cooking methods would have been discussed.

Candidates usually noted that ovens and hot plates should be switched off after use to avoid wastage of fuel and that using all shelves in the oven at the same time is economical. Many points could have been mentioned, for example ensuring that lids are used on pans and that just the right amount of water should be boiled for tea and coffee, pre-heating an oven for more than ten minutes is unnecessary and cutting food into smaller pieces allows quicker cooking. Convenience foods are usually economical of fuel because they require short cooking times.

There were many interesting answers but a question worth 15 marks requires much information in the form of precise facts, detailed explanations and appropriate examples.

Question 10

This question was equally popular and those who chose to answer it gave important facts but, as in the previous questions, answers lacked depth. It was well known that convenience foods are quick to prepare and cook, they require little skill and are easy to store. Better answers included information on added nutrients, the variety available and the advantage of being able to enjoy foods out of season and from other parts of the world. There was a lack of explanations and reasons for the points made and examples to illustrate points were rarely given.

Convenience foods were known to be high in sugar, fat and salt but the problems associated with them and the additional nutrients were rarely addressed. Candidates were usually able to state that convenience foods are usually more expensive than the fresh equivalent and portion sizes are generally smaller. The use of additives was usually acknowledged but named examples, purposes of additives and problems associated with them were often ignored.

The use of convenience foods in family meals was not explained well. It was not appropriate to simply state they can be included in lunches and packed meals. Precise examples were expected. It could have been noted that, for example, dried fruits can be used in cakes, canned pineapple can be used in pineapple upside down cake, and frozen fish can be used in fish pie. Credit was given to those candidates who noted that ice cream can be served for dessert and that bottled tomato ketchup can be served with, for example, chips. There were many possible examples but credit was only given for naming and example of a convenience food together with its use. A list of convenience foods could not be given credit since ways of including them in family meals was specifically asked for in the question.

Careful reading of each question followed by careful planning of answers will be rewarded by success.

As previously those candidates who not only demonstrate a clear understanding of the subject but also support their statements with explanations and examples will usually achieve high scores.

FOOD AND NUTRITION

Paper 0648/02

Practical

General comments

Most candidates produced work of a reasonable standard.

Many Centres labelled their work clearly, arranged the work in the correct order and sent the top copies to CIE as requested. However, a few Centres did not label the work with the allocated test numbers, did not arrange the work correctly and did not check that the addition of marks was correct. Top copies of the examination sheets should be retained for use by the Examiner, while the candidates use the second copies (pink) during the practical examination. Only the marked top copies should then be sent to CIE. The bottom copy (pink) should be collected in after the practical examination and should be retained by the Centre until after the publication of results, as this is the only copy of the candidates work if the top copies should go missing. The top copies should not be used by the candidates during the test but, as some of these were splashed with food this year, it seems that this was the case and this is not acceptable.

Some Centres were still not following the regulation that the five chosen tests should be “allocated to the candidates in strict alphabetical order”. Centres **must** follow the procedures for allocating the tests as detailed in the Confidential Instructions provided by CIE.

It is also important that all work shows evidence of marking by the Examiner on every page. Some work showed no evidence that it had been marked, except for the marks shown on the Individual Candidate Mark Sheet. It is also necessary to show clear annotation individual to each candidate on the Individual Candidate Mark Sheet to justify the marks allowed for each section. On some occasions full marks were awarded to some sections of the work without any supporting reasons. This is particularly important in the methods and results sections where the work is not seen by the Examiner at CIE.

A few Centres were allocating marks in the results section for the finished dishes according to their own scheme. There is a clear mark scheme for the choice and results sections which varies each year for each question and it is vital that this is followed carefully. On some occasions it was necessary to make some adjustments to the marks where dishes chosen were unsuitable to fulfil the test requirements or when marks awarded were very high for too few dishes showing too few skills. Examiners should read all sections of the mark scheme very carefully before marking the work. Teachers who examine the Food and Nutrition practical/coursework component **must** be accredited by CIE.

The Choice section of the preparation sheet should show which dishes the candidate has chosen to answer the question set. These should be arranged in order according to **parts (a) and (b)** of the question.

It should be clear which dishes are being served as a meal if the question asks for this.

Dishes should be named and recipes should be given alongside each dish, methods are not required here. Recipes should include the ingredients required to make the dish, with descriptions of the foods if required. It is not sufficient just to list “meat” or “fish” as the particular type of food may be crucial to the resulting dish. Candidates should weigh their foods in ounces, grams or cups and should not mix all the measurements in one recipe.

Care should be taken to ensure that candidates answer the question fully. A two course meal could be a starter and a main course or a main course and a dessert, both are acceptable. The dishes which are chosen should be suitable for the occasion, e.g. foods for an outing should pack well without breaking and should keep well in a suitable state for serving. Ice cream, which some candidates chose, is not the most suitable food for packing.

Candidates should avoid repeating ingredients in their chosen dishes, e.g. chicken soup followed by chicken casserole. They should also avoid repeating methods, e.g. using the rubbing-in method for three of their dishes.

Some candidates chose many low skill dishes, e.g. jelly, salads, while some others used canned foods or bottles of drink in their recipes. These should be avoided whenever possible as full marks for choice should

not be awarded for low skills. There should be a good variety of colour, texture and flavour served and if meals are required they should be balanced. Some Examiners were awarding marks which were too high for too few dishes, for incomplete meals and for tests which showed very few skills.

Some candidates produced very good time plans with named dishes, brief methods, temperatures and times for cooking, times for washing up and serving details.

Candidates should only be allowed 2 ½ hours for cooking and should fill all this time with skillful work. The first dish should be shown to start at a particular time, e.g. 9.00 am with the next dish starting at 9.20 am, etc. Candidates should not be simply listing "10 minutes", "15 minutes", etc. for each dish. Preheating of ovens should be shown, but only for 10 – 15 minutes, as longer than this is not economical.

Dovetailing in the preparation of dishes should be shown so that candidates are not simply making one dish after another and waiting while each dish cooks. Washing up should be shown three times in the plan.

Brief methods should be given and should be correct, e.g. "rubbing-in" is a method, "shortcrust pastry" is not a method.

Some candidates had poor sequences in the time plan such as preparing dishes late in the plan which needed setting or chilling, making cakes and attempting to ice them as soon as they were taken out of the oven.

Quite a number of candidates served their dishes throughout the test as soon as they were ready. Part of successful planning should include sequencing dishes so that meals can be served in the correct order of courses towards the end of the test. Time should be allowed for serving and some detail should be given about garnishes or decorations.

Most of the shopping lists were good but candidates need to take care that they describe their ingredients, e.g. plain or self-raising flour and that they list the exact amounts they require.

Comments on specific questions

Question 1

Many candidates chose three different protein dishes although some did not choose dishes which were suitable for the main course of a meal. The meal for the schoolboys was usually good but care should be taken to ensure that the meal is balanced. Suitable drinks were served.

Question 2

A variety of five dishes were chosen but sometimes these were not very suitable for an outing, e.g. they may be difficult to transport, may not keep well for future use or would need to be served hot. A number of candidates served one drink only when the question required two drinks.

Question 3

Generally this question was answered well. Candidates provided filling meals with plenty of energy for the manual workers. Biscuits and scones were made but sometimes these were both made by the same method.

Question 4

Candidates produced a variety of dishes suitable for the fundraising event. Sometimes these did not include a good variety of skills, e.g. using lemons for very simple lemonade. Additional dishes were prepared but it was not always clear which dishes were for the snack.

Question 5

This question was usually well answered, with many fruit and vegetables being used in the meal. Biscuits and cakes were made but sometimes these were both made by the same method and on many occasions they were not decorated as required by the question.

Question 6

Meals were prepared but they were not always the most suitable for a convalescent. Many fried foods were served or foods which needed a lot of chewing or had very strong flavours. Batter mixtures were prepared well, usually pancakes or banana fritters, and creamed cakes were served.

Question 7

Two different pastries were prepared well but often these were made into two similar dishes, e.g. two scones. Meals were completed with a choice of desserts but care should be taken that the chosen desserts show skill.

Question 8

Vegetarian meals were prepared but candidates need to ensure that no meat or fish are used, not even beef stock. Many meals did not include sufficient alternative proteins to make the meal balanced. Suitable desserts and fruit drinks were served. Cakes were made although the whisking method was not always used as required by the question. Biscuits were suitable to illustrate the melting method.