

FOOD AND NUTRITION

Paper 0648/01

Theory

General comments

There was a wide range of marks gained in this paper. Many candidates achieved high scores, demonstrating a sound knowledge of the subject and an ability to apply that knowledge and understanding to the questions set. Explanations and examples were given where appropriate. Weaker candidates were able to state facts but were often unable to give additional information; their answers were often very brief.

There seemed to have been sufficient time for candidates to answer the required number of questions. There were few rubric errors. Handwriting was generally good and scripts were neatly presented. Candidates seemed to have made good use of the mark allocations and the spaces provided for answers.

Comments on specific questions

Section A

Question 1

- (a) Carbohydrate, fat and protein were known to provide the body with energy.
- (b) Most candidates were able to state the correct energy value for each of the named nutrients, but marks could only be gained if the appropriate units, either kcal or kJ were stated.
- (c) It was well known that the body uses energy for movement, for chemical and metabolic reactions, to provide heat, for growth, for the transmission of nervous impulses and for basal metabolism. Many candidates were able to gain full marks.
- (d) The term *energy balance* was not well understood. It was expected that candidates would be able to define the term by stating that energy balance means that the amount of energy taken into the body should equal the amount of energy used.
- (e) It was disappointing that few candidates were able to give a sound explanation of the result of too high an intake of energy-giving food. Full marks would have been scored for noting that excess energy is converted to fat and is stored under the skin and around internal organs. This can result in obesity, coronary heart disease, high blood pressure and other named conditions.

Question 2

- (a) Animal sources of iron usually included red meat, liver, kidney, corned beef and eggs.
- (b) Dried fruit, pulses and green vegetables were usually correctly identified as good plant sources of iron.
- (c) The majority of candidates correctly identified the pigment as haemoglobin.
- (d) Candidates were, however, less successful when explaining the function of haemoglobin. It was hoped that candidates would be able to state that it picks up oxygen from the lungs, becoming oxyhaemoglobin. The oxygen is transported to each cell where glucose is oxidised to produce energy. This is known as cell respiration. Carbon dioxide is transported as carb-oxyhaemoglobin to the lungs for removal.

- (e) Most candidates knew that the deficiency disease associated with a lack of iron is anaemia. The symptoms of anaemia were known to be pallor, lethargy, weakness, tiredness and headache.

Question 3

- (a) The functions of vitamin C were well known. Answers given included the prevention of scurvy, the formation of connective tissue, bones and teeth, growth and the healing of wounds.
- (b) Sources of vitamin C were well known. Citrus fruit were usually mentioned, as were blackcurrants, kiwi fruit and green peppers.
- (c) Few candidates could state why a daily supply of vitamin C is important. Vitamin C cannot be stored in the body; it is easily lost from the body because it is water-soluble. Either statement would have gained a mark.

Question 4

There were mixed responses to the question on digestion in the small intestine. It was expected that enzymes and their reactions would be identified. Better accounts described digestion in the duodenum and in the ileum and full marks were often gained. There were, however, a number of candidates who seemed to have little knowledge of digestion.

Question 5

There are several reasons why individuals have different energy requirements. Most candidates discussed at length the fact that those who carry out more activities have a greater energy requirement. It was expected that candidates would be able to identify several situations where energy requirements are different. Some candidates correctly noted that individuals have different energy needs according to age. Energy is required for growth so children and teenagers have different needs from the elderly. Pregnant women need energy for the growth of the foetus, lactating mothers need energy for the production of milk and those who live in cold climates need energy to keep warm. The health of the individual, his or her body size and occupation could have been discussed.

Section B

Question 6

- (a) Many candidates were able to identify six of the nutrients in red meat. No credit was given for simply listing minerals and vitamins. Specific names were expected.
- (b) There were few correct suggestions of reasons for tough meat. Tough meat often comes from old animals or from parts of an animal which have worked hard, for example the legs or neck. Tough meat has long, thick muscle fibres and it contains a large amount of collagen. Sometimes meat can be tough because it has been frozen and has not been defrosted thoroughly before cooking. It may have been cooked by an unsuitable method, for example tough cuts of meat require moist methods of cooking.
- (c) Many candidates were able to suggest four different methods of tenderising tough meat before cooking. Credit was given for mentioning hanging, beating with a mallet, and mincing or cutting into small pieces. It was well known that marinating meat in wine or lemon juice or using enzymes such as papain from papaya would help.
- (d) There were few good explanations of how tough meat becomes tender during cooking. Many candidates stated that moist methods of cooking, for example stewing, should be used but further information was seldom given. It was hoped that candidates would be able to state that during moist methods of cooking, insoluble collagen is converted into soluble gelatine, allowing muscle fibres to separate.

- (e) There were many excellent discussions on the advantages and disadvantages of processed soya beans to resemble meat. Most accounts noted that soya beans are High Biological Value protein foods so they contain all indispensable amino-acids. This makes soya useful in vegetarian diets. It was often mentioned that soya is healthier than meat because it is lower in fat. Meat contains saturated fat, often associated with coronary heart disease. Processed soya is easy to store because it is dehydrated, it requires no preparation, and it cooks quickly, without shrinkage, taking on the flavours of other foods with which it is cooked. It can be mixed with meat to give a cheaper product and can be shaped to resemble, for example, sausages and burgers. It is fortified with iron and vitamins from the B group since these nutrients are present in meat. A few candidates noted that because of recent food scares like BSE and bird 'flu some consumers are using meat replacements. The disadvantages of processed soya were clearly identified. It was noted that the colour, flavour and texture are different from meat and may not be liked. In addition, during processing artificial additives are used and many people wish to avoid these in their diet.

Question 7

- (a) Candidates were usually able to give one or two correct points on the choice of flour and fat for making shortcrust pastry but most answers were too brief. Five marks were allocated to this section so candidates should have been prepared to give detailed responses. It was noted that plain, white flour is generally used for shortcrust pastry but few candidates made reference to the fact that soft flour with a low gluten content is best because it gives a more crumbly result. Although wholemeal flour gives a heavier result, it is sometimes used because of its NSP content. It can make a valuable contribution to fibre intake. Most candidates stated that hard fat should be used because it does not melt during rubbing in. Butter and margarine give colour and flavour, although butter is more expensive; lard gives a short texture because it does not contain water but it lacks flavour. A mixture of lard and margarine is often used in order to incorporate the qualities of both fats.
- (b) There were many excellent accounts of the method of making shortcrust pastry. Many candidates gained full marks because they were able to give reasons for each of the steps in the process. Again, the mark allocation should have been a guide to the amount of detail required in the answer.
- (c) Marks were awarded for named dishes and many good examples were given, ranging from sausages rolls, quiches and Cornish pasties to lemon meringue pie, fruit flan and jam tarts. No credit was given, however for simply giving pies and tarts as examples since the question asked for named dishes.
- (d)(i) It was not well known that pastry shrinks during baking if it has been stretched during rolling out or when it is being fitted into a flan dish. Shrinkage can also occur if the pastry has not been allowed to relax before baking.
- (ii) Hard, tough pastry can be the result of too much kneading or too much rolling and re-rolling, both of which result in the development of gluten. Too much water added to the rubbed-in mixture could also cause toughness as can the use of too much flour when rolling out.

Question 8

- (a) There were many excellent accounts on the prevention of accidents in the kitchen. The use and storage of knives was often mentioned, the danger of using electrical equipment with wet hands was noted and problems caused by pan handles sticking out and flexes trailing on the floor addressed. All relevant information was credited.
- (b) Some candidates had difficulty understanding the concept of personal hygiene, so points relating to general kitchen hygiene and food safety were included. It was expected that information regarding hand-washing, the importance of wearing clean, protective clothing and ensuring that bacteria from the mouth and nose do not enter food would be included in the response. Again, all relevant information was credited.

- (c) The storage of perishable foods gave candidates the opportunity to write at length on the storage of food in the refrigerator or freezer as well as in other areas of the kitchen. Accounts indicated sound knowledge of the topic. Better accounts gave temperatures of refrigerators and freezers and noted the effect on food of different temperatures. Many candidates, however, did not grasp that when food is stored in a refrigerator, food spoilage still occurs, although at a slow rate because bacteria merely multiply more slowly. In a freezer, on the other hand, bacteria are dormant so food spoilage is halted. The importance of noting 'use by' dates was frequently mentioned as was the need to use food in rotation and to throw away food which is inedible because it can contaminate other foods.

Section C

Question 9

This question was the more popular in this section and gave candidates a great deal of scope. Many points could have been considered depending on each individual candidate's approach. All valid points were credited so the range of answers was wide.

General points on meal planning could have related to climate, noting perhaps that hot foods are usually served in cold weather. The need to consider the time, money, equipment and foods available was often mentioned. Most answers referred to the importance of including a variety of colours, flavours and textures in meals and noted that consideration had to be given to the occasion. In most instances, statements were illustrated with examples.

It was important to note that meals should be well balanced. Most candidates made reference to individual nutrients and gave examples of foods, which could be included in order to provide them.

When preparing and cooking food, there were many points which could have been considered. Many candidates gave detailed information on ways to save time, mentioning the use of convenience foods, labour-saving equipment and appliances such as microwave ovens and pressure cookers, which shorten cooking time. They noted that quick methods of cooking like frying and grilling might be preferable to steaming and roasting in certain circumstances. Batch baking can save time because it means that dishes for a meal at a later date have already been prepared and cooked. Few suggestions were given on saving fuel although this could be an important consideration when cooking meals. Some candidates included ways to save money when planning, preparing and cooking meals. The use of seasonal foods and garden produce were recommended and shoppers were urged to make use of special offers and to buy in bulk if storage space allowed. Occasionally it was mentioned that milk, cheese and eggs are cheaper sources of HBV protein than meat and that pulses and soya could be used as complementary protein.

Money could be saved by avoiding buying biscuits and snacks and by using convenience foods cautiously.

There were many interesting answers indicating a sound grasp of the topic. The need for careful planning must be emphasised, however. A few candidates confined their answers to one or two points and this is rarely sufficient for an answer which carries 15 marks. Explanations and examples should always be given where appropriate in order to support statements made.

Question 10

This question was less popular than the previous question. Those candidates who chose to answer it produced a wide range of responses.

Most answers began by identifying different types of vegetables and giving named examples. Examples of leaves, roots, stems, seeds and flowers were common. One aspect of the importance of vegetables in the diet is their nutritional contribution, so details of the nutrients found and named examples were given. It was expected that candidates would state, for example, that iron is found in spinach and is important for the formation of haemoglobin. It was not appropriate to list nutrients or to name vegetables without relating them to each other either nutritionally or as named parts of plants.

Vegetables were known to be a valuable source of NSP and water, and functions of each were stated. It was often correctly noted that vegetables add bulk to meals so are useful for those on weight-reducing diets. They add colour, flavour and texture to meals and can be eaten raw or cooked in a variety of ways. Several answers gave details of methods of preserving vegetables to give variety and take advantage of plentiful supplies.

As previously stated, high scores can only be achieved by those candidates who not only demonstrate a clear understanding of the subject, but also support their statements with explanations and examples. Careful reading of each question followed by careful planning of answers will be rewarded.

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Practical

General comments

Most of the work presented by candidates was of a good standard. The work was arranged in the correct order and labelled clearly. Where photographs were included these were helpful in confirming the marks awarded in the results section. It is important that Centres follow the instructions correctly for the allocation of tests. The five chosen tests should be "allocated to the candidates in strict alphabetical order". Some Centres were not following this regulation and seemed to be allocating tests in some random order. It is also important that all work shows evidence of marking and that mark schemes are followed carefully.

The planning sheets should be marked as soon as they are completed, before the actual cooking of the dishes. Some mark sheets in the choice section included comments which referred to what actually happened during the practical examination, so it appears that they were marked after the event.

The methods and results sections are the place for comments about the actual cooking of dishes. The allocation of marks for the results section should be followed correctly according to the mark scheme. Some Centres awarded marks in this section according to their own schemes and this should not be the case. It is important that there is detailed annotation in all sections to explain why certain marks have been awarded, particularly in the methods and results sections. Some Centres provided very detailed comments about the work of their candidates, while others gave short, general, repetitive comments which were not helpful in verifying the marks. It was necessary to make some adjustments to marks which were too high without supporting annotation, or when dishes chosen were unsuitable or insufficient to fulfil the requirements of the test.

The choice section of the preparation sheet should show clearly the dishes chosen by the candidate to answer the question set. Where there are two parts to the test the dishes should be labelled clearly for parts **(a)** and **(b)**. Where a meal is required, it should be clear which dishes are to form part of the meal. Dishes should be varied and skilful. Recipes should be given next to each named dish, with descriptions and amounts of ingredients required. Some candidates chose well, answered the question set and showed the use of a good variety of ingredients and methods. A few candidates chose dishes with few skills e.g. salads, or repeated dishes with the same methods e.g. rubbing in. Some candidates repeated ingredients in several of their dishes e.g. cheese, lemons. Meals should be balanced, attractive and suitable for the people being served. Accompaniments and desserts should be served to complete the meal. Some Examiners awarded marks which were too high for meals which were incomplete or unbalanced and showed few skills. Marks for choice should have been deducted in this case. It is vital that candidates read the question very carefully to ensure that they are preparing what is required and that sufficient, varied and skilled work fills the time allowed for the test.

The time plan should show a logical sequence throughout the cooking including brief methods, times, temperatures for cooking and serving details. Many candidates planned their work well, including most of the detail required. Some candidates, however, failed to include details about methods, times, etc. and in a few cases it was not clear what dishes were actually being made. Pre-heating of ovens and preparation of equipment was sometimes missing and some candidates rarely seemed to wash up or clear their dishes. Sequences were sometimes poor. Dishes which need to set or be chilled should have been prepared early in the test and cakes should have been allowed cooling time before they were decorated. Some candidates had difficulty in interlinking or dovetailing their dishes, so that each dish was made in turn with some waiting time while dishes cooked. Cooking times should be used to prepare another dish or to wash up. There were some good examples of batch baking, making full use of the oven space. This is always useful but not essential (except for **Question 6**) and only works when the two dishes are to be cooked at similar temperatures. Serving details were rarely given. Indications about garnishing and decoration should be included and time allowed for this. Meals should be served hot in the correct order of eating the meal, not, as many candidates did, serving dishes as they were made, in any random order. Shopping lists were satisfactory on the whole.

Marking of the method of cooking was very variable. Clear and detailed annotation should be used in marking this section. Vague statements such as “good”, “organised”, and “worked well” do not explain what took place. The mark scheme should be used as a guide to help examiners with the necessary comments about use of tools, hygiene, etc.

The results section should clearly list the dishes made, show the mark allocation for each dish according to the mark scheme and the actual marks awarded. Detailed annotation should explain the reason why certain marks have been given. Maximum mark allocations in the mark scheme cannot be awarded for simple low-skill dishes. Centres need to take more care with this section to follow the mark scheme carefully and to mark candidates fairly on the work completed. Marks for serving and appearance should also be supported by relevant comments.

Comments on specific questions

Question 1

This was one of the most popular questions. Many candidates cooked and served a suitable two-course evening meal as required by the question. A few candidates did not prepare accompaniments while others did not take care to ensure that the meal would be balanced. A varied choice of desserts was made, but on quite a few occasions these were not very skilful. The two dishes containing different flours were usually suitable.

Question 2

Candidates used all five pieces of equipment in the preparation of five dishes. Some of these were skilful and varied, while others chose to repeat flavours, e.g. chocolate, or methods, e.g. whisking. It is important that candidates include a good variety of skills and methods in their work.

Question 3

A variety of dishes were prepared for the packed meals, some more suitable than others. Care should be taken to choose food which is sufficient for the people who are eating the meal, which packs well without damage, and which keeps well for some time. Seafood and milk to drink may not keep safely during hot weather and cakes with cream would not carry well without damage. Again methods should not be repeated e.g. rubbing-in for both the sweet and savoury dishes. Two dishes showing the use of air to raise mixtures were usually chosen well.

Question 4

There was a varied selection of dishes prepared for the birthday party. Some showed good skills, varied flavours and textures and formed an attractive display of dishes. A few candidates chose to prepare a whole range of simple dishes which would not be very demanding, e.g. flapjack, sandwiches. Birthday cakes were prepared and decorated well.

Question 5

This question was also a popular choice. Three different methods of cooking were required but some candidates did not name their chosen methods so it was not always clear how the food was to be cooked. Some candidates chose very simple dishes to illustrate the methods, e.g. boiled rice, baked potatoes, etc. Snack dishes were generally suitable and usually showed some skill.

Question 6

This question was the least popular and was not always answered well. Some candidates did not make their pastry as a batch, as required by the question, but repeated the method for pastry three times. Others made three dishes which were very similar, e.g. three pies. Two-course meals were made but often lacked accompaniments so were incomplete.

Question 7

This question was popular but was often not answered well. Some candidates prepared only two main dishes and some of these were low skill, e.g. salad. Meals often lacked accompaniments and were not served in the correct order.

Question 8

Most candidates who answered this question failed to include a roux sauce as required by the question. Adequate meals were served but these sometimes lacked variety in colour and texture. Savoury dishes made by the rubbing-in method and sweet dishes made by the creaming method were usually chosen well.