

FOOD AND NUTRITION

Paper 0648/01

Theory

Key messages

In order to score well, it is important that candidates give reasons, explanations and examples in questions for which more credit is available.

Candidates need to include relevant information.

It is vital that candidates use the amount of credit available for each question as a guide to the length of the answer, the number of points to include and the time given to each question.

General comments

Some candidates scored exceptionally well, demonstrating a good understanding of the subject and an ability to apply that knowledge. However, there were some candidates who did not do so well. Sometimes candidates failed to read the question carefully and, therefore, included incorrect or irrelevant information. At other times they did not expand upon points and failed to include explanations or examples which would illustrate points. Sometimes the candidates did not know the basic facts. It is vital that the candidates read the questions carefully and then plan their answers. There were some candidates who began answering the question correctly, but then did not keep to the information required and wrote at length on points which were irrelevant. It is vitally important that candidates tailor their answers to the question set and apply their knowledge, especially in the essays and questions for which more credit is available.

On the whole scripts were well presented and handwriting was legible and easy to read. Occasionally a script was difficult to mark as the handwriting was very small and letters were not easily recognisable. Teachers are urged to encourage candidates to write in a manner which can be easily read. Candidates should be reminded that any work which they do not wish to be marked should have a line drawn through it. Correction fluid should not be used on an examination paper.

Comments on specific questions

Section A

Question 1

- (a) Very few candidates were able to give four facts about monosaccharides. Answers could have included that they are simple sugars, the basic units of carbohydrate, the end product of digestion, they are sweet and are soluble in water. Credit was given for the correct formula. Several candidates confused monosaccharides and mono-unsaturated fats.
- (b) Several candidates were able to name two examples of monosaccharides. There were candidates in all sections of **Question 1** who gave reference to fats rather than carbohydrates.
- (c) Again candidates were often unable to name four facts about disaccharides. Possible answers included that they are double sugars, made up of two monosaccharides, they are sweet, soluble in water, formed from glucose plus one other simple sugar and are broken down in digestion into two monosaccharides.
- (d) Most candidates were able to name one disaccharide but often a monosaccharide was incorrectly included in this section. Names of fats were included in some scripts.

- (e) This was the least well answered part of **Question 1**. Polysaccharides could have been identified as being made up of many monosaccharides and are not sweet. Not all polysaccharides are digested, but starch can. Non starch polysaccharides (NSP) cannot be digested as they are complex carbohydrates. Some candidates noted that polysaccharides are insoluble in water.
- (f) A few candidates were able to name two polysaccharides. Examples could have included starch, glycogen, pectin, gums, mucilages, cellulose, NSP, etc.

Question 2

There were some very accurate answers in this section which dealt with the digestion and absorption of starch. Some candidates, however, included only the digestion of starch and, therefore, could not score full credit, whilst others included information about the digestion of all carbohydrates, giving details about the action of enzymes on sucrose and lactose. Usually these details were correct but were not relevant to the digestion of starch and so could not be credited.

- (a) Correct information in this section included salivary amylase/ptyalin from the salivary glands/saliva acts on cooked starch converting it into maltose. Several candidates were able to point out that the saliva contained something which converted the starch into maltose. A few gave additional information, e.g. naming the enzyme and accurately naming cooked starch.
- (b) Candidates often became confused in this section. Correct points were that pancreatic amylase found in the pancreatic juice converts starch into maltose.
- (c) It was in this section that most candidates lost credit by including information about the breakdown of sucrose and lactose but omitting any reference to absorption. Relevant information included the fact that maltase, found in the intestinal juice, converts maltose to glucose. The villi, finger-like projections which are found in the walls of the small intestine, provide a large surface area for absorption. They have walls made of a single layer of cells and a network of blood capillaries. Glucose passes through the walls of the blood vessels into the bloodstream and is then transported to the liver.

Question 3

- (a)(i) Most candidates were able to state correctly that calcium is important for the building and maintenance of bones and teeth. They could also have included that it is important for the clotting of blood and the correct functioning of muscles and nerves. The majority of candidates were only able to state that calcium is important for the growth of bones. A few good answers scored full credit.
 - (ii) Candidates usually scored well in this section. Good sources of calcium included milk, cheese, green vegetables, white flour and the bones of canned fish.
 - (iii) Nearly all candidates were able to name rickets, osteomalacia or osteoporosis.
 - (iv) Candidates had to include the correct symptoms of the deficiency which they had named. Symptoms of rickets included leg bones deformed, bow legs, knock knees, pigeon chest. Symptoms of osteomalacia included soft bones, bones which break easily, muscle weakness and pain. And those for osteoporosis required points such as loss of bone density, porous bones, misshapen skeleton and bones which break easily.
- (b)(i) Most candidates were aware that vitamin D is important for the formation of strong teeth and bones. Other points which could have been included were the maintenance of bones and teeth and that vitamin D is required for the absorption of calcium and phosphorus. Phosphorus was rarely mentioned.
 - (ii) Good examples of sources of vitamin D included milk, cheese, eggs, red meat, liver, oily fish, butter, margarine, cod liver oil and ultraviolet rays from the Sun/sunlight. It is important that answers are specific and candidates lost credit by just writing meat and fish.

- (c) This question was well answered. Correct answers could have contained retinol (vitamin A)/night blindness and xerophthalmia, ascorbic acid (vitamin C) /scurvy, thiamine (vitamin B1)/beriberi, riboflavin (vitamin B2)/dermatitis and cataracts, niacin or nicotinic acid (vitamin B3)/pellagra, cobalamin (vitamin B12)/pernicious anaemia, folic acid or folate/spina bifida and anaemia, iron/anaemia, iodine/goitre, protein/kwashiorkor, carbohydrate or fat or protein/marasmus.

Question 4

- (a) Many candidates were able to give three reasons for reducing the amount of sugar in the diet. They recognised the link between sugar and tooth decay, obesity and diabetes. However, they were unable to explain the link between sugar and the condition identified. It was expected that candidates would describe that bacteria in the mouth change the sugar to acid which erodes the enamel on teeth, that excess sugar is stored as fat leading to obesity and that there was a risk of diabetes as there would be too much glucose in the blood for the amount of insulin produced.
- (b) Answers here could have included eating less fat as it causes obesity and coronary heart disease, eating less salt as it causes high blood pressure, drinking more water to prevent dehydration and eating five portions of fruit and vegetables per day to increase NSP in the diet, to prevent constipation and provide a variety of vitamins.

Question 5

There were some excellent answers to this question. Some candidates, however, did not include sufficient nutrients, whilst others did not give any reasons for the inclusion of particular nutrients. Nutrients which could have been identified included HBV protein for growth of the foetus, calcium/phosphorus for building bones and teeth of the foetus, vitamin D to absorb calcium and phosphorus, iron to prevent anaemia in the mother and to provide enough iron for the baby's first six months, vitamin C to absorb iron, vitamin A for the correct functioning of the baby's eyesight, B vitamins (or named B vitamin) for the release of energy, folate or folic acid to prevent neural tube defects/spina bifida, NSP to prevent constipation in the mother. Many candidates did not relate the reason to a pregnant mother or the foetus.

Section B

Question 6

- (a) Candidates were often unable to list the ingredients for a fatless sponge cake when using three eggs.
- (b) This question was often answered in detail and, therefore, some candidates scored highly. Candidates must think about the method of making and baking a fatless sponge and write it down with reasons for actions, e.g. whisk eggs and sugar until thick to introduce air. Many candidates included margarine in the method when the question clearly stated that it was a fatless sponge cake. Others did not include preparation of the cake tin or the baking of the cake, temperature of the oven, testing for readiness and cooling on a wire rack. This was one of the questions which candidates did not read carefully before answering.
- (c) There were some excellent accounts of changes which take place when a sponge cake is baked. Some candidates were only able to state that the cake will rise and turn brown, but better answers described that air would expand and push up the cake mixture, steam from the egg evaporates helping the cake to rise, protein coagulates at 60°C, and sets in the risen shape around the air bubbles giving an open texture. Sugar caramelises, Maillard browning takes place, starch grains absorb water from the egg and swell and gelatinise, dextrinisation takes place, the effect of dry heat on flour causes browning and a crust. Full credit was attained by those who gave a detailed answer.
- (d) Candidates who were able to give a detailed account of the making and baking of the cake were usually able to give two correct answers in this section. Correct responses included insufficient whisking, air being knocked out during the folding in of the flour, beating in of the flour, using a wooden spoon or an electric mixer to add the flour, over folding, leaving to stand before baking, oven temperature too low and undercooking.

- (e) A large number of candidates incorrectly gave examples of dishes using shortcrust pastry. Examples include Swiss Roll, sponge flan, sponge fingers, chocolate roulade, chocolate sponge cake.

Question 7

- (a) Many candidates had not read the question carefully and gave nutritional points and examples. Others gave correct points, e.g. age, then incorrectly gave a nutritional example, e.g. eat less carbohydrate. Non-nutritional points included climate/time of year, equipment available, food available, time available, budget, likes and dislikes, skill of the cook, allergies, the occasion, number of people having the meal, religion/culture, gender, occupation, variety of flavour, colour and texture. These all needed to have a non-nutritional example or reason, e.g. age – old people need easily digested food or smaller portions.
- (b) There were some very good answers in this section. Candidates were able to state that NSP absorbs water in the colon making the faeces soft, bulky and easy to expel regularly. This helps clear the waste. It binds the food residues, stimulating peristalsis and gives muscles something to grip. Successful responses often mentioned that NSP helps to remove toxins, it reduces cholesterol and gives a feeling of fullness. Good candidates also gave the examples of constipation, hernias, haemorrhoids, cancer of the colon, diverticular disease and varicose veins as conditions which can be prevented by having the correct amount of dietary fibre
- (c) Most candidates stated the problems of heart disease and obesity being associated with a diet high in fat. They were able to discuss the blockage of the arteries but very few mentioned cholesterol. Better candidates looked at the role of saturated fat in causing health problems and the deposition of cholesterol on the artery walls. They included the reduction of the flow of oxygen and how angina, heart attack and stroke occur. Candidates were more successful in discussing the association of fat with obesity. Good answers were familiar with the fact that it occurs when more fat is eaten than is required. Excess is stored as fat under the skin in the adipose tissue and around the internal organs. This causes weight gain and puts a strain on the heart causing hypertension, coronary heart disease, diabetes, problems during surgery, low self-esteem, etc. This was a question in which it was important that the candidate ensured they included lots of detail. Many of them tended to include a long introduction to the fact one should not eat too much fat and then filled the space provided for the answer when they should have begun to state facts.

Question 8

- (a) This question was not well answered. Most candidates were able to include only sweetening and decoration as uses for sugar. Other uses were aerating when sugar is being used in creaming with margarine for rich cakes, as food for the yeast in bread-making, in preservation where jam has a high sugar concentration to slow down the growth of micro-organisms. It is also used in confectionery when sugar is heated to form caramel, etc., as a flavouring when Demerara is used in coffee. Sugar also slows down the formation of gluten in rich cakes which gives a softer result. It is used when glazing sweet breads, browning baked goods, it retards enzyme action in frozen fruit, it counteracts the acidity in some foods such as tomato soup. Examples of each use were needed in this question. Some candidates only gave uses of sugar and, therefore, could only score at most half of the available credit.
- (b) Most candidates were able to include some of the rules for making successful shortcrust pastry. Credit was given for noting that shortcrust pastry is made using a weak/soft flour which has a low gluten content and so gives a more crumbly texture, that the flour should be plain as air is the raising agent, the fats should be a mixture of lard and margarine or butter to give colour, flavour and shortness. It was recognised that the flour should be sieved and when rubbing in hands should be lifted out of the bowl to introduce air. Candidates seemed to understand the need to introduce air and to keep everything cold. The main reason given for keeping everything cold was to stop the fats melting. Good candidates also noted that cold air has the capacity to expand more. Several candidates gave explanations of actions taken when rolling out such as not turning the pastry over or stretching it, using as little flour as possible, rolling out in a forward direction only and using short sharp strokes. They were usually able to give reasons for all of these rules. Some candidates mentioned that shortcrust pastry should be allowed to relax before cooking and should be cooked in a hot oven to ensure that the fat is absorbed. This was a successful question for most candidates. Again this was a question in which candidates could think about what they do when making the pastry and why they take certain actions.

- (c) Many candidates did not read this question carefully. Instead of discussing how HBV protein can be included in the diet, they defined the term high biological value protein. Marks were awarded for discussing complementary proteins and giving examples of LBV plus LBV foods and HBV plus LBV. Also good answers noted the importance of soya and soya products such as tempeh, miso and textured vegetable protein (TVP). Some candidates scored full credit for this question whilst others failed to score.

Section C

Question 9(a)

Candidates tended to keep to the facts required rather than drifting off the subject and including irrelevant information. Several candidates scored full credit in this question.

Candidates were able to list several reasons for cooking food. Popular answers included: to kill harmful bacteria/to make food safe to eat, to make food easier to eat, to aid digestion, to develop the flavour of food, to make it more attractive and provide hot food in cold weather. Other reasons which could have been mentioned were to preserve the food, to aid absorption, to stimulate appetite/the flow of digestive juices, to reduce bulk, to create new dishes and to add variety to the diet. Candidates tended to give examples for each reason in this question which added to their final score.

The next section in which candidates were to discuss the different methods of transferring heat was where credit tended not to be gained. Most candidates could name the various methods but found difficulty in describing them. A few candidates described different methods, but did not name them whilst others mixed up the various methods in their descriptions. The following information could have been included:

Conduction is carried out through solids by contact. Molecules vibrate rapidly causing the adjoining molecules to vibrate causing heat energy to be transferred from pans, trays, etc. to the food hence cooking the food. Metals are good conductors of heat, e.g. metal spoon in hot liquid, metal pan on hotplate, etc.

Convection is carried out through liquids and gases. The molecules become less dense when heated and rise, whilst the cooler molecules become more dense and fall. Hence, a convection current is formed. Examples of convection are boiling water in a pan and heating in an oven.

Radiation has no medium. It is carried out through a space or vacuum. The rays are emitted from the source of heat and fall on the food in their path heating it up and cooking it. Food needs to be turned to ensure complete cooking. Examples of radiation are grilling and barbecuing.

Candidates were credited if they gave an accurate account of microwave cooking. Points to be noted included:

Electromagnetic waves are given off by the magnetron. Again the waves are in straight lines and cause the water molecules in the food to vibrate and generate heat. Heat passes to the adjoining molecules by conduction. Small/thin pieces of food need to be used as the rays cannot penetrate beyond 5 - 7.5 cm.

Some candidates went off on a tangent in this section when describing microwave cooking, as they included information about the advantages and disadvantages of microwave cooking, e.g. the food not browning or becoming crisp. This was irrelevant to the question and again emphasises the need to read and plan one's work carefully.

Question 9(b)

It was very important to read this question carefully and organise a plan as some candidates repeated information which wasted valuable time and repeated information that could not be credited twice.

The different types of convenience foods that candidates could have mentioned were frozen, dried, canned, ready to eat, ready to cook, bottled and preserved (chutneys, pickles, jam, fruit in alcohol, etc.). It was important to give examples of these different types of convenience foods.

Candidates noted a few advantages such as being quick and easy to prepare, good for emergencies and for those people who have little skill. Good answers also included points such as there being a wide variety

available, they may have extra nutrients added and there is little waste when using them. Convenience foods can also be easy to transport and store, and may save fuel, as some or all preparation may have been carried out. By using convenience foods one can eat foods out of season and from other countries.

Most candidates noted that there are disadvantages to using convenience foods and they are often more expensive than their fresh equivalents, are sometimes small servings and nutrients are often lost during processing. Good responses included comments on the use of additives, the high amounts of fat, salt and sugar and low quantity of non-starch polysaccharide in convenience foods.

The final section in this question was the least successfully attempted. Most candidates gave a list of convenience foods. This was not acceptable as the question asked how convenience foods could be included in family meals. Examples which could have been given included pastry mix for quiche, dried fruit in cake making, frozen vegetables in a pie, bottled sauces used in a pasta dish, stock cubes in soups, etc.

FOOD AND NUTRITION

Paper 0648/02

Practical

Key Messages

- To score well candidates should read the question very carefully to ensure that all the required dishes are included.
- Meals should be balanced and include a good variety of ingredients and cooking methods.
- Dishes must include a wide variety of skills.
- Time plans should include the required details of methods, cooking times and oven temperatures.

General comments

The work presented was mostly of a good standard. Many candidates answered the test questions well and prepared a good variety of dishes. Practical test sheets were generally completed correctly and usually arranged in the correct order. Some Centres did not include all the correct marksheets, particularly the MS1 and the Practical Examination Summary Marksheets, which are important for moderation. The marks on the work were not always totalled correctly and did not show signs of independent checking in these cases. In addition, some of the marks were not transferred correctly on to the Practical Examination Summary Marksheets.

Many Examiners annotated the work well, giving clear explanations for the awarding of marks in all sections of the work. The annotation is particularly important in the Method of Working and Results sections so that the Moderator can understand how the practical work progressed and how the resulting dishes looked and tasted when they were served. A few Centres included well labelled photographs of the dishes prepared. Although photographs are not compulsory these are helpful in verifying the marks awarded.

It is important that the practical test questions and the mark scheme are studied carefully before any marks are awarded. The planning sheets should be marked *as soon as they are completed* not during the practical examination as seemed to be the case at times. Candidates should be encouraged to read the questions carefully to ensure that all parts of the question are being answered and the required number of dishes are being prepared. A number of candidates did not prepare accompaniments with meals as required, yet they were still awarded full marks. Sometimes, for **Question 4**, candidates did not include good sources of vitamin C and iron as required. For **Question 7**, flour was used but not usually "wholewheat", and for **Question 6** sometimes the required yeast dish was not included. Marks for Choice should not have been awarded for dishes which were missing or incorrect.

Some Examiners incorrectly awarded full marks for dishes with few skills, e.g. bread and butter pudding, sandwiches, jacket potatoes, semolina pudding, etc. Candidates should only prepare drinks when these are required in the test. If the candidates choose to make drinks they should be made aware that these are usually very low skill and would not be awarded very high marks. The mark scheme clearly states that "maximum marks must be reduced for simple dishes", yet this was not always applied correctly. Also a number of Centres did not apply the mark scheme correctly in the Results section, as marks were sometimes awarded which were higher than the marks shown on the mark scheme. It is important that these marks are not exceeded, although marks can be reduced for lower skill dishes.

In the Choice section candidates should be listing their dishes clearly in the correct order for parts **(a)** and **(b)** of the test question or should indicate which parts of the question the dishes are intended for, e.g. use of a cake tin, etc. Some candidates presented a mixture of dishes so it was not clear how the test question was being answered. Candidates should be choosing to use a good variety of ingredients, methods of making and cooking processes in order to show a good variety of skills. A number of candidates limited their marks by the repetitive use of ingredients, e.g. cheese or repetitive methods, e.g. frying. The use of convenience

foods, e.g. ready-prepared pastry, should have been avoided as this would have limited the choices. Recipes should be balanced and should include a good variety of taste, texture, colour, etc. but this was not always the case. Recipes were usually satisfactory.

The time plans should list the starting and finishing times clearly and should include brief methods for the preparation of each dish. This should include oven temperature, cooking times, times for washing up and serving details. Many time plans were good and did include the required detail, while others simply stated "make..." with no method, or "cook..." with no time. The sequence of the preparation of dishes is important so the workflow is smooth and all dishes are ready at the correct times. Dovetailing should be used whenever possible to make maximum use of the time allowed. Some candidates showed good interlinking sequences while others simply prepared one dish after another, sometimes in an order which was not the most sensible. Serving the dishes was often a very vague section of the plan, with many candidates simply stating "serve dishes". Meals should be served hot and in the correct order of courses towards the end of the test. Indication of the type of garnishes and decorations to be used should be shown in the plan, recipes and shopping lists. Ingredients given in the shopping lists were usually listed well.

Comments on specific questions

Question 1

Candidates generally answered this question well, with the preparation of a good variety of dishes using the equipment listed. A reasonable selection of skills was shown and usually a variety of ingredients was used.

Question 2

Midday meals were prepared which were, on the whole, suitable for the elderly relatives. Occasionally accompaniments were missing and sometimes methods were repeated, e.g. rubbing-in method in both parts (a) and (b). Suitable scones and cakes were prepared.

Question 3

Three main-course dishes were prepared for part (a) and these were usually skilful. Candidates prepared two fruit desserts for part (b) but these were sometimes repetitive, using the same fruits and the same limited preparation methods. It would have been preferable if two different dishes had been prepared, possibly one using one fruit only, e.g. apples, and one using a variety of fruit. The addition of pastry, creamed or rubbed-in mixtures, etc. in the preparation would have included more skills.

Question 4

Candidates usually prepared meals suitable for teenagers but did not always include good sources of vitamin C and iron as required. The most suitable foods to include would have been red meat and fresh fruit and vegetables. Various savoury and sweet dishes were prepared for the packed lunch but sometimes these were again repetitive in their methods.

Question 5

This type of question should have given candidates plenty of scope for using a good variety of ingredients and cooking methods to show their skills in the preparation of dishes for a special event. Many candidates did answer this question well while others limited their marks by using the same main ingredient in several dishes or by repeating methods. The serving of sandwiches, (unless the bread was also being made), was not the most skilful choice and drinks should not have been included as "skilful dishes".

Question 6

Meals were prepared for manual workers as required but some of the meals were not very filling and this would be a requirement for someone who had done heavy work. Pizza or bread rolls were usually chosen as examples of yeast dishes but in the time plan a number of candidates did not allow any rising time for the yeast dough. Many varieties of biscuits were prepared.

Question 7

Candidates made a range of dishes using the listed ingredients but some did not use “wholewheat flour” as required, and used varieties of plain/white/self-raising flour instead. Wholewheat flour is made from the whole grain of wheat, including the bran and the wheatgerm, and is often called wholemeal flour. Pancakes or a batter-coated fish were the usual dishes chosen for using a batter mixture. Most candidates prepared suitable cakes by the whisking method.

Question 8

This was the least popular question. Candidates chose a range of inexpensive protein foods, e.g. cheap cuts of meat, cheese, eggs, milk, pulses and cereals and prepared acceptable two-course meals for part (a). For part (b) the most popular shortcrust pastry dish was quiche and candidates often made lasagne for a dish which includes a sauce.