

FOOD AND NUTRITION

Paper 0648/02
Practical Test

Key messages

The inclusion of photographs as supporting evidence is now compulsory. One good quality, clear photograph of the candidates' finished dishes and table settings is required. This should be printed out and not sent via CD. Candidates are not required to appear in the pictures. Videos are not allowed.

Centres must ensure they are familiar with the instructions which are sent to all centres. These instructions state that five of the eight published tests are to be used in each centre and that these are allocated to candidates in strict alphabetical order (by surname). Test numbers (not syllabus number) along with full candidate and centre details are to be written on planning sheets and mark sheets.

Centres should ensure that they are using the up-to-date documents for administration of the practical tests. Summary mark sheets, attendance register, authentication declarations and MS1 (or a printed copy of the marks submitted on CIE Direct) should all be included with the samples of work.

In larger centres where there is more than one Examiner involved in marking the practical tests, rigorous internal moderation should take place. The sample provided for external moderation should then include marked work from each person involved in the marking process. When choosing a sample for moderation, the work of candidates with the lowest marks, the middle marks and the highest mark should be included, with an even spread of work in between. Work for each test allocated should be included. Where there are several candidates with the same scaled mark, more than one of these should be included.

Examiners should refer to the Practical Test Handbook and ensure that the mark scheme is accurately, rigorously and consistently applied across the cohort. All Examiners should refresh their knowledge of the instructions and mark scheme annually.

General comments

The most successful candidates presented work of a good standard and demonstrated their abilities by submission of interesting and varied work which met the assessment criteria.

However, in several centres, candidates frequently chose low-skilled dishes which did not meet the requirements of the test. In some centres, candidates made the same or similar dishes to one another regardless of the allocated test. The questions on the test are selected to allow candidates to demonstrate their ability to interpret a brief, apply theoretical knowledge to the practical and to plan menus creatively.

Candidates generally need more guidance and practice with menu planning to meet nutritional needs. This will enable them to accurately answer the demands of the test allocated to them whilst demonstrating sufficient skills in using a wide range of ingredients, manipulation of various mixtures, and different cooking methods that make full and sensible use of the oven, grill and the top of the cooker.

Candidates should show regard for the 'theme' of the test when planning their final displays. For example, food for a party needs a party table setting, whereas food for a main meal needs a different but appropriate setting and food for a packed meal needs to be served as such. Candidates need to write their choices in the order of the test and clearly indicate which dish is for which part of the test. These should then be annotated by the Examiner with marks awarded for each choice of dish. All of the planning should be clearly and concisely annotated using the key provided in the Handbook. Examiner annotation should be in a different coloured pen so that it stands out from the candidates' work.

Centres are reminded that only one set of preparation sheets should be issued to each candidate and marks reduced where candidates use extra sheets. Preparation sheets should be fastened together with staples or treasury tags in the correct order. Marks should be carefully totalled, scaled and transferred to the summary sheet (and then the MS1 or CIE Direct). These marks must be checked by another person for accuracy.

Where half marks appear in the final total, these should be rounded down. Centres should make use of the conversion table in the Practical Test Handbook to convert marks out of 150 to marks out of 100, or they should complete the interactive Practical Test Summary Mark Sheet.

It is a requirement that all candidates' work must show evidence of marking, with annotation clearly written on the work to show how and where marks have been awarded or reduced. There were excellent examples of marking in many centres, with clear, accurate and helpful annotation. In a few centres, Examiners failed to annotate in sufficient detail – some did not provide any commentary at all – and this makes the moderation process extremely difficult. Detailed annotation both on the front sheets and within the work itself ensures that moderation is both fair and consistent.

This series yielded an unprecedented number of candidates not producing or not serving one or more of their planned dishes. Where this occurs, the reasons for the omission must be clearly recorded as marks are affected differently, depending on whether the dish was attempted and abandoned during preparation and cooking, or whether it was not attempted at all.

It was clear that many candidates had tried hard to plan appropriate menus in response to the test questions. The main issues lie in the interpretation of the test requirements and ensuring the planning is more accurate. Candidates should be encouraged to make more suitable choices which fulfil the test requirements and which demonstrate the use of a range of ingredients, skills and a variety of cooking methods. They need to make skilled and complex dishes which demonstrate their knowledge of consistencies and cooking methods and which require a range of manipulative skills. Candidates who are aiming for high grades should be making their dishes from scratch and keeping the use of convenience foods to a minimum unless the test asks for them. Centres are again reminded that drinks should not be made, unless specifically required, and cannot be awarded any marks.

From the photographs included, it was pleasing to see many wonderful examples of colourful arrays of food with appropriately dressed tables and place setting for meals or other events. All candidates do need to consider what the final overall presentation would look like and plan to make colourful dishes or use suitable garnishes to enhance their tests.

Good practice was seen in centres where candidates listed their dishes clearly for **parts (a) and (b)** of the question and indicated which dishes include particular ingredients or methods required by the question. Examiners are reminded to indicate on the choices sheet how many marks have been awarded for each individual dish with justification given on the mark sheet. In the main, marks for choices were awarded accurately and fairly, with some exceptions. If a dish is awarded four marks for Choices, it should be marked out of seven for Results; conversely any dish with marks reduced to a maximum of three in Choices for low skill level should then be marked out of maximum five for Results.

Planning should include brief but accurate details of preparation and cooking methods, cooking times and oven temperatures. Candidates should indicate on their time plans how they will test that each item of food or recipe is cooked – for example, they should state that a sponge cake would be baked until 'golden brown and springy to touch', pasta 'cooked until al dente'. There were many good examples of 'dovetailing'. This is a complex skill that allows candidates to show how, while one dish is cooking, another is being prepared or decorated. Candidates should use dovetailing to demonstrate the efficient use of time and to allow them to make dishes of a higher skill level within the time allowed; where dovetailing is not evident, the maximum marks available for the sequence of work section are five. Time left at the end of a plan indicates a lack of skill in the dishes chosen or errors in timing for other processes. Some of the plans were written over too many pages. The maximum should be two and any extras should mean that marks are adjusted as it is an indication of too much detail being put into the time plans. Time plans should indicate sufficient work to fill 150 minutes; no less and no more.

The marks for the final results section were often a little generous considering the number of incorrect or low skill dishes. Where this is the case the total number of marks should be reduced. For incorrect dishes a maximum of 3½ marks and for low skill dishes 4 or 5 maximum should be awarded, depending on the dish. Where candidates fail to make or serve a planned dish, marks for serving and appearance must also be reduced.

Comments on specific questions

Test 1

The best choices for the two-course meal in **part (a)** indicated a well-balanced meal that had a good supply of protein, iron – an important nutrient for teenage girls – and starchy carbohydrates for energy. There were good examples of meals that demonstrated a variety of textures and flavours. Candidates needed to take care not to repeat methods used in **part (a)** when planning for **part (b)** of the question. For **part (b)**, dishes that could be easily stored and transported and that would still be appetising the next day were suitable choices. Dishes such as filled pancakes or trifle were not suitable for this purpose. High risk foods and those requiring re-heating for service are difficult to justify in this type of question. A few candidates took the time to display the food correctly as a meal for **part (a)** and packed the **part (b)** dishes into containers.

Test 2

This question requiring candidates to prepare dishes for a party generated mixed results. The most successful candidates planned complex and skilful dishes, demonstrating a good balance of nutrients, colours, textures and flavours. Dishes for a party need to be suitable for serving on a buffet table and be easy to portion, serve and eat. The dishes needed to be carefully chosen to complement one another, rather than a random collection of main meal dishes and/or accompaniments, plus one or two finger-foods. This test is also a good opportunity to demonstrate skills by decorating a cake and there were a few good examples of these. To gain full marks for this, the icing or piping needed to be neatly done and more skilful than merely dusted with icing sugar or sprinkled with nonpareils, for example. Ideally any party table should have a theme, carried through the whole menu and including the table settings. There were several good examples of this, where candidates clearly had fun preparing for their 'party'.

Test 3

For this question, a light, low calorie meal was required to meet the needs of sedentary workers. Some of the menus produced were rather heavy and calorific for this purpose and candidates sometimes incorrectly repeated cheese or other main ingredients in **part (a)** and **part (b)**. For **part (b)**, candidates generally made a large cake as required; marks were reduced if small cakes had been planned and made by mistake. The cake needed to be skilfully and neatly decorated to gain more than five marks for results. Many candidates made successful cheese savoury dishes which tended to be gratins and macaroni cheese.

Test 4

As with the 'party' question, the school event theme generated mixed results. Again, successful candidates were able to plan creatively with complex and skilful dishes that would be easy to portion and sell to customers. Skilful snack items should ideally be hand-held, and include dishes such as sausage rolls, mini pizzas or quiches, pasties and samosas; along with small cakes, muffins, scones, tarts or biscuits. Candidates needed to demonstrate a good balance of nutrients, colours, textures and flavours, with more emphasis on savoury rather than sweet dishes. Dishes for this test looked most appealing when they were displayed as a school event stall.

Test 5

Only a small number of centres allocated this question; when responses to this question were seen, there were some good examples of imaginative use of the different cooking methods. Lower skilled choices, such as simple fried chicken wings or grilled meats served on their own attracted fewer marks throughout the test. For **part (b)** the scones were often served plain, when the addition of jam and cream or a savoury spread could have improved the dish. Small cakes or tray bakes needed to be neatly decorated to gain full marks.

Test 6

This question tested the candidates' knowledge of specific ingredients and there were many suitable choices made in response. The best work was from candidates who used the specified ingredient accurately as an integral part or main feature of the chosen dish. For this type of question, the dishes all need to be complex and skilful. Where candidates choose dishes that would normally be served as accompaniments, for example, this generally reduces that skill level and marks should be adjusted accordingly. Candidates must also take care not to repeat methods used in the different dishes. Some candidates were marked down for using white flour instead of wholemeal, whereas white flour is also wheat flour and should have been given credit. For **part (b)** cold dessert dishes were often low skilled fruit salads, kebabs or simple jellies and the biscuits were not always made by the melting method, although there were some good examples of nutty, ginger or oatly biscuits made.

Test 7

For **part (a)**, a low-fat and low-sugar menu was required to reflect the needs of individuals with type 2 diabetes. A few candidates recognised this and planned accordingly. For some, the meals chosen did not meet this requirement; candidates tended to produce heavy meals, repeated skills or main ingredients from **part (b)**, or omitted one or more dishes from the menu. For **part (b)**, the choices for a savoury dish using pastry needed to be different from the choices in **part (a)**. In addition, the choice for the cake needed to be a whisked method cake, and several good examples of Swiss roll, Genoese or decorated gateaux demonstrated the candidates' knowledge of processes from the syllabus.

Test 8

For this question, the most successful candidates were able to showcase a suitable range of vegetables as main ingredients in dishes, although many repeated ingredients, methods and skills were evident. Several candidates produced ambitious and imaginative dishes that demonstrated a range of skills such as sauce-making, pastry skills and frying. A few candidates did repeat skills in **part (b)**. For **part (b)** the sweet dish using dried fruit was often a cake or small cakes, with some more imaginative uses such as apricot filling for choux buns. A dish using a batter mixture could have been pancakes (a popular choice) or fritters, for example, and should not have been a cake mixture.

FOOD AND NUTRITION

Paper 0648/11
Theory

Key messages

Candidates should be reminded to read questions carefully. On many occasions, lengthy answers were produced which, although factually correct, were not relevant to the question. It is important that candidates are reminded to select appropriate information and to tailor their responses to the topic of the question.

Mark allocations and the amount of space given for the answer are intended to indicate the amount of detail required in an answer.

General comments

There was a wide range of scores for this paper. It was pleasing to note that there were several candidates who produced answers of a very good standard, demonstrating a thorough understanding of the subject matter and an ability to apply their knowledge. Reasons, examples and discussion were given where appropriate. Candidates with lower marks showed that they were able to recall basic facts but did not give required explanations or examples.

Comments on specific questions

Section A

Question 1

This question was generally well answered. A good proportion of candidates correctly stated that malnutrition is when there is an incorrect intake of nutrients and under nutrition is when there is an insufficient intake of nutrients.

Question 2

- (a) (i) The majority of candidates were able to correctly state that children require higher levels of protein in their diet due to rapid growth or a growth spurt. Some answered that protein is needed for energy as children are very active, which was also accepted.
- (ii) The majority of candidates were able to correctly state that athletes require higher levels of protein in their diet to replace energy used in physical activity or to build or repair muscle tissue.
- (iii) Some candidates were able to correctly state that women who are breast-feeding require higher levels of protein in their diet for lactation or milk production. Some answered that protein is needed to repair body cells after birth, which was also accepted.
- (b) Most candidates were able to correctly name two different sources of high biological value protein. Popular answers were meat, fish, and soya.
- (c) A good proportion of candidates were able to correctly state that during digestion trypsin converts protein to peptones.
- (d) The majority of candidates correctly stated that either kwashiorkor or marasmus is a deficiency disease caused by a lack of protein.

- (e) (i) Candidates were able to gain the available mark by stating that denaturation is an irreversible change to chemical structure. A good proportion answered correctly but there appeared to be some misunderstanding around the term.
- (ii) The term coagulation was usually correctly explained as the effect of heat on proteins resulting in the food hardening or setting.

Question 3

- (a) This was generally well answered. The most popular response given by the majority of candidates was that fats are solid at room temperature whilst oils are liquid at room temperature.
- (b) The functions of fat were well known with most candidates stating energy as their initial answer. Insulation, the protection of internal organs, satiety, the formation of cell membranes and a solvent for fat soluble vitamins were some of the other functions mentioned. Many candidates scored full marks.
- (c) Good knowledge was shown in answer to this question. The majority of candidates stated during digestion lipase converts fats to glycerol and fatty acids.
- (d) The majority of candidates were able to correctly state the type of fat was saturated.
- (e) This question was generally well answered. A good proportion of candidates correctly explained eating too much fat could cause heart disease due to fat or cholesterol being deposited on artery walls thus narrowing them and reducing the flow of blood which provides oxygen.

Question 4

It was well known, by the majority of candidates, that rickets, osteoporosis or osteomalacia is a deficiency disease associated with a lack of calcium. Most candidates correctly gave milk, cheese or bones of canned fish as sources of calcium.

The majority of candidates were able to correctly state that a function of iron is to form haemoglobin or, alternatively, transport oxygen via the red blood cells. Most candidates knew that the deficiency disease associated with a lack of iron is anaemia.

A fair proportion of candidates knew that iodide makes the hormone thyroxine and many gave milk or iodised salt as a source.

Only a small number of candidates had the knowledge required regarding the function and deficiency problems of sodium. It was expected that an awareness would be shown that sodium controls the amount of water in the body, transmits nerve signals or helps muscular contraction and that headaches, muscle cramps or fatigue are associated with a deficiency of sodium.

Question 5

- (a) Many candidates stated that a temperature of -18°C renders bacteria unable to multiply or become dormant.
- (b) Many candidates stated that a temperature above 75°C destroys or kills bacteria.

Question 6

- (a) Most candidates were able to correctly name at least two symptoms of scurvy. The most frequent responses were fatigue, swollen or bleeding gums or loose teeth.
- (b) Only a small number of candidates scored full marks on this question. When a question asks candidates to *explain* they should make the relationship between things clear by giving relevant points which show connections between the points made and the context of the question. Some candidates demonstrated knowledge of how to prepare and cook green cabbage in order to retain its vitamin C content but few gave a relevant explanation for their statements.

Section B

Question 7

- (a) This question was answered very well with most candidates achieving full marks. It was well known that other methods which could be used to make biscuits were rubbing-in, melting, whisking and all-in-one.
- (b) (i) Some candidates incorrectly gave self-raising or strong flour for making biscuits. Most correct answers stated plain, soft or wholemeal flour. Confusion arose in the second part of the question as the reason for choice was not always appropriate.
- (ii) Most candidates correctly suggested butter for flavour or colour. Some gave margarine which was also correct but for the extra mark needed to state that the type would be soft or polyunsaturated for ease of creaming or hard or block which would be suitable for rubbing in.
- (iii) Many candidates suggested caster sugar and the expected answer was due to a finer texture suitable for the creaming method. Quite a few answers gave soft brown to give colour which was also correct. Those that gave granulated were also correct but the reason should have been to give a crunchy texture. Marks were not awarded for stating that the sugar gave taste or sweetness as this is the function of all types of sugars.
- (c) Many candidates achieved good marks for this question suggesting butter icing, piped cream, fondant icing, glacé icing, icing sugar, caster sugar and melted chocolate as ways to decorate the biscuits after baking. The use of sprinkles, sweets, dragées or dried fruits was not accepted unless a suitable edible adhesive was mentioned.
- (d) A lot of candidates did not read the question correctly and simply gave answers related to general packaging material. It was expected that answers would reflect the advantages of using paperboard or card.
- (e) This question was generally answered well. Most candidates were able to state several pieces of information which may be found on a food label. The most popular answers were name of product, address/phone/website of manufacturer, ingredients, cooking instructions, storage instruction, date marking, additives identified and weight. Other acceptable responses included vegetarian society symbol, wheat ear/gluten-free symbol and halal symbol.

Question 8

- (a) Most candidates scored highly for this question. Some candidates displayed lack of knowledge when naming the chalazae and air sac.
- (b) Most candidates were able to give good advice on the storage of eggs. Information included the fact that they should be kept in a cool place such as a refrigerator and to use them in rotation. It was known that eggs should not be washed. Many candidates correctly advised that only separated eggs should be frozen. Other valid points were that eggs should be stored with the rounded end upwards, away from strong smelling foods and in the box or an egg tray.
- (c) The different functions of eggs were well known and appropriate examples to illustrate each function were usually given. Good answers identified coating, trapping air, glazing, emulsifying, binding, setting and thickening.
- (d) Some candidates did not read the question correctly and mistakenly suggested vegetarians as a group of people who may be put at risk by eating eggs. Correct answers included babies, elderly or pregnant women. Possible reasons for risk by consuming eggs were that eggs may contain salmonella or eggs are moist/protein food which gives ideal conditions for microorganism growth. Answers relating to saturated fat or cholesterol were not credited as risk factors.

Question 9

- (a) Most candidates correctly named either vegans or lacto-vegetarian as types of vegetarian that do not eat eggs.
- (b) Many candidates achieved good marks for this question. Popular reasons why some people choose to follow a vegetarian diet were religious beliefs, moral reasons, dislike of animal flesh, vegetarian diet is more healthy due to less saturated fat, following trends and family upbringing.

Section C

The questions in this section are worth fifteen marks and candidates are expected to answer in an essay style. It is important that when answering questions of this nature that candidates read the requirements of the question carefully to give a balanced response that addresses all areas of the question equally.

Question 10

- (a) Candidates attempted this question with widely varying degrees of depth. Most were able to describe several specific nutritional needs of an elderly person but many did not explain the reasons behind the stated needs. Those candidates who described some of the difficulties the elderly may experience when eating, or how to present meals attractively, were not credited with this knowledge as it was not asked for in the question.

The majority of candidates were able to provide several insightful measures for how the elderly can save money when shopping for food. Most favoured responses were to buy foods in season when they are cheaper, only buy what is needed to prevent waste, buy in bulk as it is often cheaper, use cheaper cuts of meat, have a shopping list to reduce impulse buys, look for special offers, use supermarket's own brands which are often cheaper, use 'money off' coupons, compare prices between shops for 'best buy' and shop locally to save transport costs.

- (b) Very few candidates chose to answer this question. The use of microwaves is an area that centres may need to focus on in their future teaching.

Many candidates described the process of putting the food in the oven and programming the device to cook the food which was not what the question was asking. Some candidates were able to explain some aspects of how food is cooked in a microwave oven. Marks were mainly awarded for stating that microwaves heat food by radiation. Rarely was the magnetron and its function mentioned or how the microwaves bounce around the oven off the reflective metal walls of the compartment. It was expected that candidates would know that when in contact with the food, the energy from the microwaves causes water molecules in the food to start vibrating so causing it to get hot and the hotter parts of the food pass heat, by conduction, to the cooler parts giving uniform cooking.

Some candidates knew that a disadvantage of microwave cooking is that food does not brown, become crisp or develop flavour as in other methods of cooking. Some awareness was shown of the fact that the oven space is small so limited amounts of food can be cooked and metal dishes should not be used. Very few mentioned standing time, hot spots or the need to turn food with different thicknesses to ensure even cooking.

When discussing safety aspects of a microwave cooker there were many incorrect references to the danger of radiation posed by microwaves and that microwaves could cause cancer and were unsafe. Microwave cooking is not dangerous. The door catch is the switch so microwaves cannot 'escape' from the oven when the door is open. Some candidates were aware of the need to use oven gloves to remove containers from a microwave as they may be heated from the food. They also knew that metal containers should not be used in a microwave. Few advised piercing holes in cling film covering foods to allow steam to escape and to remove the cling film carefully after cooking to avoid being scalded with steam and none warned not to stir liquids when cooking time was finished due to boiling over caused by being superheated.

FOOD AND NUTRITION

Paper 0648/12
Theory

Key messages

Careful note should be taken of introductory words and sentences in the question as these establish the type of information required in the answers.

Questions which require discussion should include many different facts, with detailed reasons and examples to illustrate the points made.

When a question asks for a specified number of answers, including more answers than required will not gain extra marks.

General comments

It was encouraging to see that some candidates included planning notes before starting their **Section C** answer. Planning often helps to give a more structured answer and ensures that relevant material is presented in a concise way.

It is very important to read the question carefully to ensure that what is written actually answers what the question requires. Some answers were quite lengthy but gained few marks because facts were missing and too much irrelevant material was included.

In future years candidates should be more familiar with dietary requirements during pregnancy, packaging and the use of additives.

Comments on specific questions

Section A

Question 1

- (a) Only a small number of candidates were able to give the correct response of glycerol or glycerine.
- (b) The majority of candidates were able to correctly state that one physical difference between fats and oils is that, at room temperature, fats are usually solid and oils are usually liquid. Many did not give 'room temperature' in their answer.
- (c) Most candidates were able to give a chemical difference between saturated fats and unsaturated fats.
- (d) (i) The most popular answers were meat, milk, lard, butter and cheese. Occasionally ghee and suet were seen but very few named coconut or palm oil. Many candidates gave margarine as a saturated fat so were not able to achieve full marks.
 - (ii) Most candidates were able to name at least three sources of unsaturated fat; avocado, corn oil, olive oil, canola oil and sunflower oil were the most popular. Many candidates identified food sources that did not contain any fat such as fruits or vegetables.

- (e) Many candidates gave the required number of answers. Some stated that energy could be mechanical, electrical, chemical or energy in the form of heat; basal metabolism was frequently not given. Other answers which were credited were examples of ways in which energy is used though some candidates simply repeated a use of energy such as running, swimming or walking. Some candidates misread the question and gave functions of fats.
- (f) The majority of candidates gave a correct unit for this question. The full range of expected responses was seen.
- (g) The majority of candidates were able to identify that fat melts when heated. Very few candidates achieved the second mark. When correctly answered the most popular answer was that fat burns, occasionally blue haze or smoke point was seen.
- (h) Most candidates were able to gain some marks by correctly stating that oil which has been used for frying should be strained after use to remove impurities or particles left from previous food. In order to gain full credit, candidates also needed to mention the prevention of rancidity due to the food particles or prevention of the next food to be fried from having its appearance spoiled by leftover food particles.
- (i) (i) A small number of candidates were able to name bile as the substance in the digestive system which emulsifies fats.
 - (ii) A small number of candidates correctly answered this question by identifying lipase as an enzyme which breaks down fats.
 - (iii) A small number of candidates achieved the mark for this question. Ileum or small intestine was the expected response. Responses simply stating 'intestine' lacked sufficient detail.
 - (iv) When this question was answered, the majority of candidates were able to name the villi as the location of the lacteal. Very few candidates were able to state that the function is to absorb or transport nutrients.

Question 2

- (a) The majority of candidates were able to identify at least one correct function. The most popular answers being to help vision in dim light, prevent night blindness, production of visual purple and healthy skin. Some candidates stated that vitamin A is good for vision or eyesight which was not credited.
- (b) The most common correct answers were butter, cheese, milk and eggs. If fish was given it had to be qualified as oily fish. Many candidates incorrectly identified sunlight and green leafy vegetables as food sources of vitamin D.
- (c) A small number of candidates were able to state a function of vitamin E. When correct the most popular responses were healthy skin and antioxidant, occasionally there was mention of the maintenance of cell membranes.
- (d) Many candidates were unable to identify a food source of vitamin K.

Question 3

- (a) Only a few candidate gained high marks for this question. Sometimes candidates included the function of the nutrient in the examples response space.

Many candidates could discuss the need for iron and provided relevant correct responses. Few candidates were able to correctly identify food sources of iron. Many candidates mistakenly indicated pregnant women could eat liver to provide iron.

A small number of candidates gained marks in the section on vitamin B9 (folic acid) with many candidates giving no response to this part of the question. When correctly answered candidates identified that folic acid is essential for the normal growth of the baby, required for the release of energy from food and occasionally to prevent spina bifida.

Knowledge of food sources was limited and very few candidates achieved marks for this section.

- (b) Very few candidates were able to suggest types of food which should be avoided during pregnancy with supporting reasons. Common incorrect responses were not specific to pregnant women, and included avoiding fast food, cakes and oily, sweet, spicy or salty food, usually with detailed reasons that could refer to anyone.

Section B

Question 4

- (a) The majority of candidates were able to suggest some advantages of using a slow cooker. Popular answers included little attention so can do other things, little loss of nutrients, flavours develop, economical of fuel energy and almost impossible to burn food. The best answers were detailed and showed thought and understanding in relation to what the question was asking.

- (b) Some candidates gave good answers showing knowledge of how to store leftovers from a slow-cooked chicken casserole. Most identified that leftovers needed to be cooled as quickly as possible then refrigerated in a covered container. Some identified where in the refrigerator the cooked food should be kept. Only a few candidates were aware of the length of time leftovers should be kept and that they should not be re-heated more than once. Some candidates suggested reheating the food in the slow cooker which was inappropriate; most who discussed reheating the food favoured a microwave but no temperature or mention was given of the product being piping hot all the way through. Many suggested storing the leftovers in the freezer. Some candidates did not understand the concept of leftovers and discussed storing raw chicken or storing the slow cooker rather than the contents.

Question 5

- (a) A small number of candidates correctly answered this question. It was evident that many candidates did not know the requirements of a coeliac. The majority of answers simply stated the recipe was not suitable because of the strong flour with several saying it had salt or used dried yeast.
- (b) Most correct answers identified strong flour as having higher gluten content or that it would give a more elastic dough. Some candidates stated it would make strong soft dough or that strong flour is needed for bread, neither of which were credited.
- (c) The majority of candidates achieved the mark by responding that salt was used for flavour.
- (d) Many candidates correctly stated the temperature was important to activate the yeast. Some responses referred to high heat killing the yeast which was also credited.
- (e) A small number of candidates were able to identify fermentation as the process by which yeast produces carbon dioxide and alcohol. Incorrect responses were caramelisation, dextrinisation, alcohol, proving and aeration.

- (f) Very few candidates achieved the available two marks. When correctly answered the main reasons given for kneading in bread-making were to distribute the yeast or to form an elastic dough.
- (g) The majority of responses seen gained a mark by identifying the process but did not link the correct nutrient or ingredient. Overall the most popular responses were dextrinisation followed by caramelisation. Candidates who answered incorrectly frequently stated that bread became brown due to use of glaze or egg or milk or the high heat in the oven.
- (h) The question required candidates to give rules for personal hygiene. Candidates who approached the question correctly included information on the need to wash hands regularly, to wear a clean apron, tie hair back and cover wounds before starting to cook. They usually noted that jewellery and nail varnish must not be worn and that fingers and cooking utensils should not be licked during food preparation. Many candidates appeared to misunderstand the nature of personal hygiene, and gave answers about general kitchen and food hygiene which could not be awarded marks.
- (i) Many candidates who attempted this question did not appear to have read the question carefully. Candidates repeated plastic wrapping in various forms or vaguely indicated bottle or box without referencing the material used. Examples of the food that would be packaged in the stated material were often incorrect as many candidates gave reasons why the packaging was used.

Question 6

- (a) Many candidates gave accurate points to look for when buying fresh fish. It was known that the eyes of the fish should be bright or not sunken, there should be plenty of firmly attached scales, the tail should be stiff, the skin moist and the gills must be bright red. Many candidates were able to gain full marks for this part of the question.
- (b) (i) A good proportion of candidates showed good knowledge by correctly naming two examples of oily fish. Most frequent responses were herring, mackerel, salmon, tuna and sardines.
(ii) Some candidates identified fish that were often not shellfish and therefore did not score as highly in this part of the question.
- (c) The majority of candidates achieved at least one of the available marks by stating flour, batter or breadcrumbs as suitable coatings for fish before deep frying. Biscuits or egg were frequently incorrectly named.
- (d) This question was generally answered well showing a great deal of knowledge and understanding. There were some candidates who appeared to misunderstand the question, which required candidates to give safety points when frying, not the method of frying or the steps to take when the fat catches fire. Some candidates did not read the question carefully and did not give reasons for their advice.
- (e) Candidates correctly stated sauces, garnishes and vegetable accompaniments could be used to make steamed white fish more appetising, however, in order to gain the marks, they needed to name the sauce and identify the type of garnish, herb or vegetable. When correctly answered the most popular responses were to garnish with parsley, lemon and chilli. A small number of candidates achieved marks for this question.

Section C

The questions in this section are worth fifteen marks and candidates are expected to answer in an essay style. It is important when answering questions of this nature that candidates read the requirements of the question carefully to give a balanced response that addresses all areas of the question equally.

Question 7

- (a) Fewer candidates chose this question. In order to gain marks, candidates needed to give answers that were detailed, showing their knowledge of the functions and advantages of additives.

Most frequent correct answers in the first section included to extend the shelf life of food, stop the growth of bacteria and increase time food is safe to eat. Some candidates did not read the question carefully and discussed methods of preservation instead of preservatives.

Many candidates could identify some functions of flavourings and sweeteners such as being used to improve or enhance taste, to develop a product range like sauces, to create new food products with unusual flavours or to reduce sugar content. It was also expected that advantages of these types of additives would be acknowledged such as creating healthy products, helping reduce tooth decay, reducing the sugar content which can help consumers with weight reduction or increasing food choice for diabetic consumers. Few candidates were able to give many advantages of these types of additives.

A small number of candidates gained marks in the section on emulsifiers and stabilisers. Answers could have included emulsifiers help to improve the consistency of food, mix together ingredients like oil and water which would normally separate, stabilisers prevent them from separating again, lengthen shelf life which means there will be less wastage and allowing fats and oils to mix with water to make low-fat spreads which gives consumers on a weight reducing diet increased choice.

In order to score well candidates needed to provide factual information using good examples to illustrate their points and to cover all areas of the question equally.

- (b) A good number of candidates achieved marks in this question. Many showed exceptional knowledge and understanding of ways to prevent food poisoning when storing and preparing food and provided valid descriptions and explanations to back up points made.

Some candidates simply described ways to prevent food poisoning with no specific reference to storing or preparing therefore not fully answering the question.

Some candidates discussed symptoms and causes of food poisoning, points to consider during the purchase of food from shops and markets and gave lengthy explanations about ensuring foods were cooked properly. None of these areas were required by the question.

It was expected answers would reference correct storage of dry goods, canned products, perishable foodstuffs and frozen items with links to suitable places and temperatures in the kitchen area and appropriate reasons for each point made. It was hoped candidates would show awareness of stock rotation, consideration of date-marking and how to store food correctly to prevent cross contamination or infestation through pests. In regard to food preparation candidates could have stated that care should be taken within the areas of personal, kitchen and food hygiene with appropriate explanations for each point.

FOOD AND NUTRITION

Paper 0648/13
Theory

Key messages

Candidates should be reminded to read questions carefully. On many occasions, lengthy answers were produced which, although factually correct, were not relevant to the question. It is important that candidates are reminded to select appropriate information and to tailor their responses to the topic of the question.

Mark allocations and the amount of space given for the answer are intended to indicate the amount of detail required in an answer.

General comments

There was a wide range of scores for this paper. It was pleasing to note that there were several candidates who produced answers of a very good standard, demonstrating a thorough understanding of the subject matter and an ability to apply their knowledge. Reasons, examples and discussion were given where appropriate. Candidates with lower marks showed that they were able to recall basic facts but did not give required explanations or examples.

Comments on specific questions

Section A

Question 1

This question was generally well answered. A good proportion of candidates correctly stated that malnutrition is when there is an incorrect intake of nutrients and under nutrition is when there is an insufficient intake of nutrients.

Question 2

- (a) (i) The majority of candidates were able to correctly state that children require higher levels of protein in their diet due to rapid growth or a growth spurt. Some answered that protein is needed for energy as children are very active, which was also accepted.
- (ii) The majority of candidates were able to correctly state that athletes require higher levels of protein in their diet to replace energy used in physical activity or to build or repair muscle tissue.
- (iii) Some candidates were able to correctly state that women who are breast-feeding require higher levels of protein in their diet for lactation or milk production. Some answered that protein is needed to repair body cells after birth, which was also accepted.
- (b) Most candidates were able to correctly name two different sources of high biological value protein. Popular answers were meat, fish, and soya.
- (c) A good proportion of candidates were able to correctly state that during digestion trypsin converts protein to peptones.
- (d) The majority of candidates correctly stated that either kwashiorkor or marasmus is a deficiency disease caused by a lack of protein.

- (e) (i) Candidates were able to gain the available mark by stating that denaturation is an irreversible change to chemical structure. A good proportion answered correctly but there appeared to be some misunderstanding around the term.
- (ii) The term coagulation was usually correctly explained as the effect of heat on proteins resulting in the food hardening or setting.

Question 3

- (a) This was generally well answered. The most popular response given by the majority of candidates was that fats are solid at room temperature whilst oils are liquid at room temperature.
- (b) The functions of fat were well known with most candidates stating energy as their initial answer. Insulation, the protection of internal organs, satiety, the formation of cell membranes and a solvent for fat soluble vitamins were some of the other functions mentioned. Many candidates scored full marks.
- (c) Good knowledge was shown in answer to this question. The majority of candidates stated during digestion lipase converts fats to glycerol and fatty acids.
- (d) The majority of candidates were able to correctly state the type of fat was saturated.
- (e) This question was generally well answered. A good proportion of candidates correctly explained eating too much fat could cause heart disease due to fat or cholesterol being deposited on artery walls thus narrowing them and reducing the flow of blood which provides oxygen.

Question 4

It was well known, by the majority of candidates, that rickets, osteoporosis or osteomalacia is a deficiency disease associated with a lack of calcium. Most candidates correctly gave milk, cheese or bones of canned fish as sources of calcium.

The majority of candidates were able to correctly state that a function of iron is to form haemoglobin or, alternatively, transport oxygen via the red blood cells. Most candidates knew that the deficiency disease associated with a lack of iron is anaemia.

A fair proportion of candidates knew that iodide makes the hormone thyroxine and many gave milk or iodised salt as a source.

Only a small number of candidates had the knowledge required regarding the function and deficiency problems of sodium. It was expected that an awareness would be shown that sodium controls the amount of water in the body, transmits nerve signals or helps muscular contraction and that headaches, muscle cramps or fatigue are associated with a deficiency of sodium.

Question 5

- (a) Many candidates stated that a temperature of -18°C renders bacteria unable to multiply or become dormant.
- (b) Many candidates stated that a temperature above 75°C destroys or kills bacteria.

Question 6

- (a) Most candidates were able to correctly name at least two symptoms of scurvy. The most frequent responses were fatigue, swollen or bleeding gums or loose teeth.
- (b) Only a small number of candidates scored full marks on this question. When a question asks candidates to *explain* they should make the relationship between things clear by giving relevant points which show connections between the points made and the context of the question. Some candidates demonstrated knowledge of how to prepare and cook green cabbage in order to retain its vitamin C content but few gave a relevant explanation for their statements.

Section B

Question 7

- (a) This question was answered very well with most candidates achieving full marks. It was well known that other methods which could be used to make biscuits were rubbing-in, melting, whisking and all-in-one.
- (b) (i) Some candidates incorrectly gave self-raising or strong flour for making biscuits. Most correct answers stated plain, soft or wholemeal flour. Confusion arose in the second part of the question as the reason for choice was not always appropriate.
- (ii) Most candidates correctly suggested butter for flavour or colour. Some gave margarine which was also correct but for the extra mark needed to state that the type would be soft or polyunsaturated for ease of creaming or hard or block which would be suitable for rubbing in.
- (iii) Many candidates suggested caster sugar and the expected answer was due to a finer texture suitable for the creaming method. Quite a few answers gave soft brown to give colour which was also correct. Those that gave granulated were also correct but the reason should have been to give a crunchy texture. Marks were not awarded for stating that the sugar gave taste or sweetness as this is the function of all types of sugars.
- (c) Many candidates achieved good marks for this question suggesting butter icing, piped cream, fondant icing, glacé icing, icing sugar, caster sugar and melted chocolate as ways to decorate the biscuits after baking. The use of sprinkles, sweets, dragées or dried fruits was not accepted unless a suitable edible adhesive was mentioned.
- (d) A lot of candidates did not read the question correctly and simply gave answers related to general packaging material. It was expected that answers would reflect the advantages of using paperboard or card.
- (e) This question was generally answered well. Most candidates were able to state several pieces of information which may be found on a food label. The most popular answers were name of product, address/phone/website of manufacturer, ingredients, cooking instructions, storage instruction, date marking, additives identified and weight. Other acceptable responses included vegetarian society symbol, wheat ear/gluten-free symbol and halal symbol.

Question 8

- (a) Most candidates scored highly for this question. Some candidates displayed lack of knowledge when naming the chalazae and air sac.
- (b) Most candidates were able to give good advice on the storage of eggs. Information included the fact that they should be kept in a cool place such as a refrigerator and to use them in rotation. It was known that eggs should not be washed. Many candidates correctly advised that only separated eggs should be frozen. Other valid points were that eggs should be stored with the rounded end upwards, away from strong smelling foods and in the box or an egg tray.
- (c) The different functions of eggs were well known and appropriate examples to illustrate each function were usually given. Good answers identified coating, trapping air, glazing, emulsifying, binding, setting and thickening.
- (d) Some candidates did not read the question correctly and mistakenly suggested vegetarians as a group of people who may be put at risk by eating eggs. Correct answers included babies, elderly or pregnant women. Possible reasons for risk by consuming eggs were that eggs may contain salmonella or eggs are moist/protein food which gives ideal conditions for microorganism growth. Answers relating to saturated fat or cholesterol were not credited as risk factors.

Question 9

- (a) Most candidates correctly named either vegans or lacto-vegetarian as types of vegetarian that do not eat eggs.
- (b) Many candidates achieved good marks for this question. Popular reasons why some people choose to follow a vegetarian diet were religious beliefs, moral reasons, dislike of animal flesh, vegetarian diet is more healthy due to less saturated fat, following trends and family upbringing.

Section C

The questions in this section are worth fifteen marks and candidates are expected to answer in an essay style. It is important that when answering questions of this nature that candidates read the requirements of the question carefully to give a balanced response that addresses all areas of the question equally.

Question 10

- (a) Candidates attempted this question with widely varying degrees of depth. Most were able to describe several specific nutritional needs of an elderly person but many did not explain the reasons behind the stated needs. Those candidates who described some of the difficulties the elderly may experience when eating, or how to present meals attractively, were not credited with this knowledge as it was not asked for in the question.

The majority of candidates were able to provide several insightful measures for how the elderly can save money when shopping for food. Most favoured responses were to buy foods in season when they are cheaper, only buy what is needed to prevent waste, buy in bulk as it is often cheaper, use cheaper cuts of meat, have a shopping list to reduce impulse buys, look for special offers, use supermarket's own brands which are often cheaper, use 'money off' coupons, compare prices between shops for 'best buy' and shop locally to save transport costs.

- (b) Very few candidates chose to answer this question. The use of microwaves is an area that centres may need to focus on in their future teaching.

Many candidates described the process of putting the food in the oven and programming the device to cook the food which was not what the question was asking. Some candidates were able to explain some aspects of how food is cooked in a microwave oven. Marks were mainly awarded for stating that microwaves heat food by radiation. Rarely was the magnetron and its function mentioned or how the microwaves bounce around the oven off the reflective metal walls of the compartment. It was expected that candidates would know that when in contact with the food, the energy from the microwaves causes water molecules in the food to start vibrating so causing it to get hot and the hotter parts of the food pass heat, by conduction, to the cooler parts giving uniform cooking.

Some candidates knew that a disadvantage of microwave cooking is that food does not brown, become crisp or develop flavour as in other methods of cooking. Some awareness was shown of the fact that the oven space is small so limited amounts of food can be cooked and metal dishes should not be used. Very few mentioned standing time, hot spots or the need to turn food with different thicknesses to ensure even cooking.

When discussing safety aspects of a microwave cooker there were many incorrect references to the danger of radiation posed by microwaves and that microwaves could cause cancer and were unsafe. Microwave cooking is not dangerous. The door catch is the switch so microwaves cannot 'escape' from the oven when the door is open. Some candidates were aware of the need to use oven gloves to remove containers from a microwave as they may be heated from the food. They also knew that metal containers should not be used in a microwave. Few advised piercing holes in cling film covering foods to allow steam to escape and to remove the cling film carefully after cooking to avoid being scalded with steam and none warned not to stir liquids when cooking time was finished due to boiling over caused by being superheated.