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FOOD AND NUTRITION

Paper 0648/01

Paper 1

General comments

There was a wide range of scores for this paper, although it was encouraging to note that many candidates produced answers of a high standard, demonstrating a thorough knowledge and understanding of the subject and an ability to apply that knowledge. The weakest candidates were usually able to recall facts but could offer few explanations or examples.

Candidates seemed to have had sufficient time to answer the required number of questions. There were a few rubric errors which were the result of candidates attempting both of the questions in **Section C**. Some candidates, however, made little or no attempt to answer the **Section C** question, so forfeited all the possible marks.

Scripts were usually well presented and handwriting was easy to read. The mark allocations at the end of each question or part question are for guidance. Candidates should use them to decide on the amount of time and detail to include in their answer.

Comments on specific questions

Section A

Question 1

- (a) The functions of protein were well known, enabling most candidates to score full marks.
- (b) Credit was given to any four of the elements which combine to form protein.
- (c)(i) It was surprising to note that many candidates were unable to define HBV protein. Full marks would have been scored by those who stated that HBV protein contains all the indispensable amino acids in sufficient quantity.
 - (ii) Examples of good sources of HBV protein were usually correct.
- (d)(i) It was expected that candidates would be able to state that LBV protein lacks at least one of the indispensable amino acids. Many answers suggested a lack of understanding of the difference between HBV and LBV protein.
 - (ii) Candidates were usually able to give one or two good sources of LBV protein.
- (e)(i) Definitions of complementary protein often indicated a lack of understanding. Good answers noted that the term refers to two LBV protein foods, or one HBV and LBV food, eaten together. The indispensable amino acid which is lacking in one food is made up by its presence in the other.
 - (ii) Appropriate examples included beans on toast, dhal and rice and scrambled egg on toast. Each example had to be two foods which could be eaten together.
- (f) There were many excellent accounts of the digestion and absorption of protein. Some answers included details on the digestion of other nutrients, suggesting that some candidates were unable to select relevant information. Marks were awarded for naming enzymes in the appropriate part of the digestive tract, for naming the end products at each stage of digestion and for noting that absorption of amino acids into the blood capillaries occurs in the villi.
- (g) Most candidates were able to give some correct information on the deamination of protein, but there were good answers. Full marks would have been gained by those who stated that in the deamination process, which takes place in the liver, nitrogen is removed from amino acids. Nitrogen is toxic and is removed from the body by the kidneys in the form of urea.

Question 2

- (a) It was well known that NSP absorbs water, making faeces soft and bulky and helping removal of waste. Most candidates mentioned that it prevents constipation and were able to mention other conditions which could be prevented by including adequate NSP in the diet.
- (b) It was expected that examples of good sources of NSP would have included wholegrain cereals, green vegetables, fruit eaten with skins, wholemeal bread and pulses. Unqualified examples such as bread and cereals or fruit and vegetables could not be credited.

Question 3

- (a) It was not known by many candidates that sodium chloride is important for maintaining water balance in the body; water is lost in body fluids such as blood and sweat which also contain salt. The chloride part is needed for the manufacture of HCl in gastric juice. Iodine is often added to table salt so many answers emphasised the importance of iodine in the diet. This was irrelevant since the question was concerned with sodium chloride in the diet.
- (b) Most answers noted that manual workers require additional salt because salt is lost in perspiration. This was usually the only situation mentioned. It was expected that candidates would have been able to state that in hot climates sweat is produced to cool the body and maintain body temperature.
- (c) Very few candidates knew that if the body is deficient in salt, a person is likely to suffer from muscle cramps.
- (d) Most of the advice given, related to controlling the amount of salt used in cooking or added at the table. Some answers correctly advised that other flavourings such as herbs and spices could be used instead of salt and that fewer salty snacks like potato crisps and salted peanuts should be eaten. It was expected that more reference would have been made to checking the ingredients listed on a food label or to reducing the amount of convenience food eaten since it often includes salt as a preservative.

Section B**Question 4**

- (a) The nutrients in red meat were generally well-known and many candidates gained full marks. It was expected that vitamins in the B group would be individually named.
- (b) Methods of tenderising tough meat before cooking were described accurately in most answers. Pounding, mincing and marinating were usually mentioned as was the use of enzymes such as papain and bromalin.
- (c)(i) All moist methods of cooking meat were acceptable answers. Candidates usually mentioned boiling and stewing but braising and pressure cooking were also credited.
- (ii) There were many accurate accounts of the changes which take place when meat is cooked by a moist method. It was usually noted that there is a change in colour from red to brown, the meat shrinks in size and fat melts. More detailed answers informed that insoluble gelatine is converted to soluble gelatine during moist cooking and that protein is coagulated by heat. The amount of space for the answer should have suggested that several facts would be expected.
- (d)(i) Candidates usually linked the consumption of red meat with coronary heart disease and obesity but rarely noted that red meat contains saturated fat, which is associated with cholesterol. Those who mentioned cholesterol, however, gave descriptions of how cholesterol narrows arteries by being deposited on the inner walls. Any of this information was credited so candidates generally scored some of the available marks.
- (ii) Suggested alternatives included fish and poultry, soya and TVP, pulses and cereals. A few candidates correctly suggested that LBV protein foods could be eaten together in order to produce a mixture which would be of HBV; this would be as valuable in the diet as meat.

Question 5

- (a) There were several acceptable methods of incorporating air into mixtures, and although candidates could give all or most of them, they were often unable to give an appropriate example of the methods mentioned. Sieving dry ingredients was usually listed and it was easy for candidates to give an example. Whisking, rubbing in and creaming were often mentioned but marks could only be awarded if a named example of the uses was given; Swiss roll, Victoria sandwich cake and rock buns were credited but no credit was given for just mentioning cakes as examples. Rolling and folding was credited together with a named pastry, but folding did not gain a mark even if the example was correct, because folding describes a different process. Beating, whipping and whisking were also acceptable methods of introducing air into mixtures.
- (b) Descriptions of the methods of making scones were either very good or very poor with little in between. Some candidates seemed to be unfamiliar with the process, indicating, perhaps, their lack of experience. Credit was given for describing the method and for giving reasons for each part of the process. Full marks could only be achieved if reference was made to baking the scones since this was asked in the question.
- (c) A wide range of variations was possible and full marks were generally scored. Cheese, sugar and dried fruit were popular suggestions, although chopped nuts, grated apple, mixed herbs and glace cherries were sometimes named and were credited.
- (d)(i) It was surprising that many candidates were unable to name carbon dioxide as the raising agent in scones.
- (ii) (a) It was expected that candidates would state that it is produced by the action of moist heat on baking powder but there were few correct answers.
- (b) The majority of candidates gave some correct information on the raising action in scones but answers tended to be brief and lacking in detail. Good answers noted that gases expand on heating, pushing up the mixture. The heat of the oven coagulates the protein in the scone mixture and sets the scones in their risen position.

Question 6

- (a)(i) It was expected that yeasts, moulds, bacteria and enzyme action would be given as the causes of food spoilage.
- (ii) Most candidates were able to identify some of the conditions which promote food spoilage. Warmth, moisture, food, time, oxygen and a suitable pH were those credited.
- (b) This part of the question was not well answered, suggesting that candidates often have little understanding of the freezing process; it is frequently confused with refrigerating and the terms are often used interchangeably.
- (i) Freezing prevents food spoilage because at low temperatures, such as the -18°C in a freezer, bacteria are unable to multiply; water is frozen so one of the conditions required for micro-organisms to thrive is absent. This concept is not well understood.
- (ii) 'Fast freezing' is important because at a temperature of -25°C , the temperature at which foods should be frozen in a domestic refrigerator, small ice crystals form within cell walls. This ensures that the cell walls are not ruptured during freezing and the contents of the cell do not escape on thawing. The texture of the food is thus maintained. Again, very few candidates were able to give any correct information on the process.
- (c)(i) It was expected that a temperature of 4°C would be known to be that at which a domestic refrigerator operates.
- (ii) Candidates were often confused about the effects of raising and lowering the temperature of a refrigerator, generally assuming that if the temperature was high, the refrigerator would be colder and vice versa.
- (a) Too high a temperature inside a refrigerator means that the food inside the cabinet will not keep for so long because bacteria will be allowed to multiply more quickly.
- (b) If the temperature is too low, the water in foods such as eggs, green vegetables and meat will freeze, damaging the texture or, in the case of eggs, cracking the shell, which allows bacteria to enter.

- (iii) There was a wide range of possible rules for storing food in a refrigerator. Candidates usually gave one or two points and repeated them in a different way. Explanations were asked for. If rules were given without explanations, only half the possible marks were available. Some of the rules suggested were to avoid putting hot food into the refrigerator because this raises the temperature, encouraging the growth of micro-organisms; and ensuring that containers and bottles were clean to avoid introducing bacteria into the refrigerator. Most candidates noted that food should be covered to prevent cross contamination and the drying of the surface of the food. They also mentioned that raw meat should be placed at the bottom of the refrigerator so that it does not drip onto other food. The expiry date on food should be observed to avoid using food which could be unsafe to eat; food should be used in rotation for the same reason. The need to clean the refrigerator frequently was often stated as was the advice to leave spaces between items to allow cold air to circulate. Most answers included a few points but were generally lacking in depth and detail.

Section C

Question 7

- (a) Candidates who chose to answer this question usually gave good reasons for cooking food and illustrated the points made by referring to examples. There were several points which could have been made; they included making food safe to eat by destroying micro-organisms, for preserving food, reducing bulk, providing hot food in cold weather and giving variation in colour, flavour and texture. Some candidates correctly noted that cooking allows different dishes to be created and gives the opportunity for different methods of cooking. This part of the question was more successfully addressed than the second part.

Most candidates gave one or two examples of how money can be saved when buying food but answers tended to be brief. It was often suggested that a shopping list should be used to avoid buying unnecessary foods and that prices should be compared in different shops before making purchases. Other suggestions were to buy in bulk and to buy foods in season or at the end of the day when prices are often reduced. It was sometimes advised to buy just the quantity needed to avoid waste or to avoid buying convenience foods because they are more expensive than fresh ingredients. Very few candidates mentioned buying tougher cuts of meat which are cheaper. They can be tenderised by moist methods of cooking. Candidates were given credit for any relevant information. The problem was that each candidate gave very few different points on saving money when buying food.

Although this part of the question should have been straightforward, many answers were not related to the question. Candidates often described how to cook vegetables in order to retain nutrients, although this information was not requested. It was expected that the advice given would include using microwave ovens, steamers and pressure cookers which save fuel and therefore money. Some candidates suggested that a whole meal, or a number of dishes, could be cooked in the oven at the same time. Others noted that food should not be overcooked because this could result in waste. Most answers mentioned the importance of preparing sufficient food for the number taking the meal to avoid waste; any left over food should be used in another meal. Candidates limited the marks gained in this question by giving few examples and explanations and by repeating information.

- (b) The responses to this question, concerning the information found on a food label, were rather disappointing. There are many different types of information which could have been discussed; these include the name of the product, the manufacturer's name and address, the weight of the product, the method of storage and the method of cooking. Candidates usually mentioned the list of ingredients but rarely explained that the list is in descending order by weight. The significance of the expiry date was usually noted. Nutritional information and its importance on packaging was discussed by many candidates, but often at the expense of other information. It was surprising to note that this was often the only type of information considered. Consequently the marks gained for this question were limited. It was expected that answers would include information on the groups of people who would be interested in the information found on labels; vegetarians or those with intolerances would study the list of ingredients and people who follow particular diets would be interested in, for example, the energy value or the amount of salt or saturated fat in the product. Again, answers lacked depth and detail. Candidates usually gave relevant information but not enough different points were developed. Fifteen marks were available for this question but some answers were only a few lines long.

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Paper 2

General comments

Candidates generally completed all sections of the paper and the work presented was arranged in the correct order. Most candidates wrote legibly but a few candidates chose to write using different coloured pens which is not the most suitable way to present the work. On some occasions candidates did not give the number of their allocated test so it was not clear which question was being answered. Several Centres attached photographs showing the results of the work of their candidates. It is very helpful when these are included so that marks awarded by the Examiner in the results section can be confirmed. It would help further if the dishes which are photographed are labelled with the name of each dish, rather than just the name of the candidate. Mark sheets for the candidates should be attached securely to the front of the work of each candidate and not included separately. The mark schemes provided for all sections, including choice and quality, should be followed carefully and Examiners should not be allocating marks according to their own schemes. Where instructions were not followed properly, marks awarded were often too high and adjustments were necessary. It is also essential that the addition of marks is checked before the work is submitted.

The preparation for the practical examination has marks allocated for plan of work, time plan and shopping list.

The plan of work should show the names of the chosen dishes in such a way that it is clear what is being made. Care should be taken that the required number of dishes are produced according to the test requirements and these should fill the time allowed. If candidates plan correctly, additional dishes should not be necessary. Marks are allocated for the correct number of dishes which would answer the question so additional work should not have any marks. The dishes should be arranged in the correct order as required by the test. It should be clear which dishes fulfil each section of the test and meals, where required, should be clearly indicated and complete. Many candidates failed to include vegetables and sauces with their meals and often sweet courses were not included. Where meals were incomplete, marks should have been deducted. Dishes chosen should show a good variety of skills and processes and the marks awarded should reflect this. Low skill dishes should not be awarded high marks for choice, method or results. Meals should show balance and this should be considered when marking this section. Economy should be shown in both the chosen methods for cooking the dishes and the ingredients to be used. Candidates should not be choosing very few dishes which fulfil several purposes in the test e.g. one dish to show several uses of eggs. This would affect the marks which could be allowed as time would be saved but skills would be limited. Recipes should be detailed and complete with descriptions of the ingredients required e.g. types of flour, meat, nuts, etc. Foods should not be used repetitively throughout the test e.g. fish used in two or more dishes. Amounts of ingredients should always be stated and should be exact e.g. two eggs, not two to three. Candidates should not over order food to the extent that some food is unused or even thrown away. Ingredients listed here should also appear on the shopping list. Candidates should not be intending to use ingredients in their methods which have not been listed in the recipe. Examiners should study the mark scheme carefully before marks are awarded. Detailed annotation is required to show clearly how candidates are meeting the requirements of the test.

In the time plan candidates should show clearly, stage by stage, how their work will be completed. A sensible sequence should be shown with some brief indication of methods, cooking times and temperatures. Times should be allocated throughout the test for washing of dishes, serving and a final clearing up. Dishes which need long cooking, several stages, or chilling/setting time should be prepared early in the test. The work should be sequenced in such a way that candidates prepare other dishes while some are cooking, so that time is not wasted waiting for food to cook. Sensible times should be allocated for each process e.g. three minutes is not sufficient to mix the icing and decorate a batch of biscuits. Cakes which need decoration should be allocated some cooling time before they are completed. The full cooking time should be used for the test. Candidates who finish their work early may have planned insufficient work or may have been unrealistic in their allocation of time for each process. When meals are completed, these should be served in the correct order of courses. Many candidates completed their dishes and served them throughout the test, with no consideration for the correct order of dishes in a meal, or that hot dishes should be served hot. Quite a number of candidates gave no serving details at all. 'Serve dishes' gives no detail about finishing touches or sequence of dishes to be served.

The shopping list was completed reasonably by many candidates. Some candidates however omitted some of their ingredients or missed vital ingredients from their list. A few candidates bought packets of sugar, etc. with no indication of the amounts required. Other candidates did not specify exactly what they bought, so listed two to three apples etc. The special equipment list should be completed by all candidates. In the logical planning of the dishes which are to be made, candidates should be able to list some pieces of cooking or serving equipment which will be needed. Candidates should not state that all items will be 'brought from home'.

Examiners need to study the mark scheme very carefully when marking the actual method of cooking. Candidates should not be awarded high marks for simple methods, limited skills and poor timing. Good organisation is required to complete a series of skilful dishes and achieve high marks. Candidates who choose simpler, shorter work should not be awarded equally high marks. Examiners should be able to justify the marks awarded and statements such as 'good' and 'satisfactory' give no detail of what was 'good' etc. Instructions are given in the mark scheme for assessing the work of good, average and poor candidates.

When marking the quality of dishes, Examiners should follow the mark scheme which is provided. Detailed comments should be made about the dishes regarding flavour, texture and edibility. The maximum possible marks on the mark scheme should not be exceeded. Marks should be reduced for dishes which have not been completed and for simple dishes which show few skills. Marks should not be allocated to extra dishes which were completed but were not part of the test. Dishes should be served within the test time with some reduction in marks if dishes are served slightly late. Dishes which are served longer than ten minutes after the test time should not be marked for results. Examiners should make comments regarding the sequence of serving and the final appearance of the dishes after decoration or garnishing. This is where a photograph is particularly useful to show what has been produced.

Comments on specific questions

Question 1

This was a popular question and most candidates included foods which were rich in Vitamin C, particularly citrus fruits and green vegetables. Main dishes were made but on many occasions no carbohydrate foods were added to make the meal more balanced. Batches of biscuits were baked but some candidates failed to decorate their biscuits as required by the test. Cold drinks were provided but sometimes these were almost identical e.g. two smoothies, when more skills could have been shown in the making of two different drinks.

Question 2

Many candidates chose to answer this question. However, when listing dishes candidates did not always make clear which dish was to show the use of each piece of equipment. Generally candidates showed varied skills e.g. creaming, whisking, pastry making, etc. On many occasions it was not clear which dish was to form part of the main meal and often the meal was incomplete. Savoury and sweet dishes were made but many candidates failed to add vegetables and sweet or savoury sauces to complete the meal fully.

Question 3

Few candidates chose this question. One large amount of shortcrust pastry should have been made and this should have been divided up into portions for each of the three dishes required. Some candidates chose to make pastries which were not shortcrust. Other candidates made their pastry in three separate amounts which was not really 'one batch' as required by the question. A variety of skills should have been shown in the use of the pastry. A few candidates did this, while many others chose to make identical flan bases with similar fillings. Usually it was not clear which shortcrust pastry dish would form part of the packed meal. Also, with the exception of salads, many candidates failed to add other savoury or sweet dishes to complete the meal. Drinks were usually made.

Question 4

Candidates who chose this question did not always select dishes which would answer the question correctly. Often three different dishes were produced, which included eggs as an ingredient. These dishes did not always show the different uses of eggs which were required, e.g. glazing, binding, coating, raising agent, emulsifying, etc. It would have been helpful to state the purpose of the eggs alongside the named dishes to show clearly that the candidate understood what was required. Suitable dishes could have included fishcakes (using eggs for coating), sausage rolls (using eggs for glazing), Swiss roll (using eggs as a raising agent), etc. Scones and biscuits were prepared and were usually good.

Question 5

This was not a popular question. Candidates should have chosen at least three dishes which would show a variety of skills, tastes and textures and would be suitable for a celebration. A balanced meal was necessary for this type of test. A choice of drinks should have been provided but many candidates made only one drink only. Some candidates served cakes which were not decorated when this was a requirement of the test.

Question 6

Many candidates chose this question. Meals were made for children but on many occasions these were not varied in colour and texture and often lacked calcium. Sometimes ingredients were used repetitively e.g. cheese and occasionally unsuitable foods were served e.g. fish with bones. Some candidates made only one type of small cake when the test stated 'a selection'. Occasionally cakes were not made by the creaming method.

Question 7

Candidates could have prepared either a starter and a main course or a main course and a sweet for the two course meal. Those who chose this question generally made good choices in their main dishes but they did not always include accompaniments to complete the meal. Some candidates failed to consider that balance in nutrients, colour, flavour, etc. is essential when making a complete meal. Two cold desserts were usually completed but sometimes these were made so late in the test that there was not adequate time for setting or chilling.

Question 8

Candidates who chose this question indicated clearly the use of the individual ingredients in each of the three dishes. The dishes chosen were usually varied and skilful. However, once more the main meal was not always completed with suitable accompaniments.