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FOREWORD

This booklet contains reports written by Examiners on the work of candidates in certain papers. **Its contents are primarily for the information of the subject teachers concerned.**

FOOD AND NUTRITION

GCE Ordinary Level

<p>Paper 6065/01 Paper 1 - Theory</p>

General comments

Candidates seemed to have had sufficient time to answer the required number of questions. There were few rubric errors. The presentation of scripts was generally good although there were still occasions when candidates either did not rule a line between questions or did not leave a space. There is no need to begin each question on a new page, but there must be a clear beginning and end to each question. Some candidates did not number their answers or identify each part clearly. This is important otherwise a great deal of time is wasted by the Examiner. It was encouraging to find that in the majority of cases the questions selected from **Section B** were clearly indicated in the grid on the front cover. It is hoped that all candidates manage to follow this instruction in the future.

The use of correction fluid continues to be a problem. The attention of candidates must be drawn to the instructions on the front of the examination paper, where it also states that staples must not be used to fasten additional sheets of paper to the booklet. Although string is usually used it is often tied too tightly, causing the paper to tear. There is always a risk that some of the sheets will become detached and perhaps lost. Candidates should be warned of this. In some instances the problem is caused by the piece of string being too short; the only way a knot can be tied is by pulling the sheets together tightly. It is the responsibility of each candidate to ensure that answer pages are assembled in the correct order.

Some of the answers to **Section B** questions were disappointing. This frequently seemed to have been caused by candidates not reading the questions carefully. Some answers were too lengthy and included much irrelevant material. Candidates must be encouraged to use the mark allocation for each part of the question to estimate the amount of detail required by the answer and the amount of time to spend on each part. Mark allocations are meant to be used for guidance.

Many answers highlighted the fact that candidates had learnt details on a topic but could not apply their knowledge to given situations. Learning facts without understanding has little value; often time was wasted because candidates gave all of the information they could recall on a topic, whether it was relevant or not. The most successful candidates were able to select appropriate knowledge to suit the question.

Comments on specific questions

Section A

Question 1

- (a)(i) Candidates were usually able to give two uses of energy. The most frequent answers were for warmth, movement or basal metabolism.
- (ii) Protein was known to be used for growth, repair, body fluids and enzymes. Examples of body fluids were credited.
- (iii) Many candidates stated that fat could be used for energy. Although correct, this could not be credited since the information was given in the introductory sentence. It was correctly stated to be used for insulation, protection, to convey fat soluble vitamins and to give flavour to foods. There were other equally valid answers.

- (b)(i)** Simple forms of sugar are monosaccharide, glucose, fructose and galactose. Any of these were appropriate answers.
- (ii)** It was well known that eating too much carbohydrate causes an increase in weight.
- (iii)** It was surprising that few ways of reducing sugar in the diet were suggested. It was not acceptable to advise using less sugar in meals; definite examples were required. The use of artificial sweeteners, low calorie soft drinks, less chocolate, cakes and biscuits were mentioned. Some candidates correctly noted that the amount of sugar in home-made cakes and biscuits can be reduced. Although most of the information given was correct, there were usually not enough examples so marks were limited.
- (c)** The digestion and absorption of fats was not well known so most candidates scored few marks. This was unfortunate since there were ten marks available for correct information which could have been learnt. Marks were scored for naming enzymes, for naming the part of the digestive tract in which they worked and for describing the reaction of each. An example would be that in the duodenum, amylase from pancreatic juice, changes starch to maltose. Similarly, when describing absorption, full marks would have been gained for stating that glucose is absorbed by the blood capillaries in the villi which are found in the ileum. It then passes into the bloodstream. Although not a complete answer the information would have gained almost half marks. In an answer of this type, only precise facts can be credited.
- (d)(i)** Although it was known that iron forms haemoglobin, there was often no other information. Better candidates added that haemoglobin is the red pigment in blood and is responsible for transporting oxygen to cells as oxyhaemoglobin. The oxygen is, in turn, used to produce energy.
- (ii)** Vitamin C was known to assist in the absorption of iron. An alternative answer would have been that vitamin C helps to convert iron from its ferric (non-haem) form to its ferrous (haem) form.
- (iii)** Candidates were usually able to name sources of iron and vitamin C, although few could give five correct sources of each.
- (e)(i)** The function of B vitamins in the production of energy was not explained well. A good answer would have been that B vitamins are concerned with the release of energy, by oxidation, from glucose, fats and proteins.
- (ii)** Many candidates correctly stated that iodine is needed to make thyroxin which is produced by the thyroid gland. They were usually unable to add that it is needed to control metabolic rate.
- (f)** There were many excellent suggestions of ways of encouraging good eating habits in young children, but few reasons were given. The most frequently mentioned were to serve meals regularly, to give small portions, to serve attractively and to avoid snacking between meals. The importance of avoiding too much fried food was noted. All realistic suggestions were credited but full marks were scored only when reasons were given.

Section B

Question 2

- (a)** Candidates were normally able to give at least two reasons for choosing to follow a vegetarian diet. The most frequently stated reasons were because of religious beliefs, an objection to the slaughter of animals, the cost of buying meat, the cost of rearing animals compared with growing crops and the dislike of the taste and texture of meat. Recent health scares, for example, BSE, were occasionally mentioned. Some considered a vegetarian diet to be healthier because animal fat contains cholesterol which is associated with coronary heart disease.
- (b)(i)** It was expected that a vegan diet would be stated to contain no animal flesh and no animal products.
- (ii)** Lacto-vegetarian and ovo-lacto-vegetarian diets were usually given as other types of vegetarian diet. Many candidates suggested that another type would be strict vegetarian, not understanding that a vegan diet is a strict vegetarian diet. Problems arose when defining the different types of diet.

- (c) There was a wide range of understanding of the ways of including HBV protein in the diet. Most candidates mentioned the importance of soya in a vegetarian diet; the different forms such as soya milk, tempeh and tofu were often noted. The fact that lacto-vegetarians and ovo-lacto-vegetarians can consume dairy products was often overlooked. Pairing LBV proteins or mixing HBV and LBV protein foods in the same meal was often mentioned but seldom explained well. Examples were usually given. The possible use of mycoprotein foods such as Quorn was occasionally mentioned. This is unsuitable for vegans because the fibres are bound with albumen.
- (d) Candidates were usually able to identify one or two problems associated with a vegetarian diet and to offer suggestions for their remedy. Vegan diets may lack vitamins A and D which can be obtained as carotene from vegetables and, in the case of vitamin D, by the action of ultra violet light on the skin or from fortified margarine. Vitamin B12 must be obtained from tablets. Vegetarian diets sometimes lack fat, calcium and iron. Appropriate non-animal sources of these nutrients were credited. Sometimes candidates mentioned that such a diet can be bulky because of the high level NSP from vegetables. There were many possible problems but, again, full marks could only be scored by those who offered solutions to the problems.

Question 3

- (a) Candidates were usually able to give some reasons for storing food correctly. Those given included to make food last longer, to prevent waste or the development of 'off' flavours and to avoid the multiplication of micro-organisms. Correct storage also helps to ensure that vitamins B and C are not lost and that the texture of food is maintained.
- (b)(i) This part of the question was very poorly answered suggesting that the principles of refrigeration are not fully understood. To score full marks, candidates should have stated that food is kept hot above 63°C so that bacteria are either destroyed or are unable to function. Food should be cooled rapidly to below 10°C to avoid giving bacteria time or an ideal temperature to multiply. At temperatures below 10°C microbial action is slow.
- (ii) A refrigerator cabinet is kept at a temperature of 4°C because at this temperature micro-organisms reproduce slowly. This was not known by the majority of candidates. Many incorrectly stated that bacteria are destroyed at this temperature.
- (iii) There were few correct explanations for frozen foods being frozen at -25°C and stored at -18°C. The reason is that at the lower temperature very small ice crystals form within the cell so the cell walls are not damaged. Enzymes are unable to function at -18°C and below.
- (c)(i) Most answers gave too little information. The temperatures and times for either the sterilisation or Ultra Heat Treatment of milk should have been given. It was usually stated that bacteria are destroyed during these processes.
- (ii) Pickled vegetables must first be salted so that water is removed by osmosis. Vinegar replaces the water so the vegetables are preserved since micro-organisms cannot multiply in acid conditions. Candidates seemed to be unfamiliar with the process.
- (iii) Most candidates chose to explain how food can be preserved by making jam. Again, the marks were disappointing because answers lacked detail. Micro-organisms are destroyed when the fruit is boiled. Jars are sealed to prevent the entry of micro-organisms although the high concentration of sugar (65%) used in jam-making will prevent their growth.

Salt is sometimes used to draw water from foods by osmosis before the smoking process begins. Smoking partially dehydrates micro-organisms; they need water to grow. Phenols from smoke are deposited on the surface of the food and this inhibits microbial activity.

Question 4

- (a) Candidates were usually able to give the appropriate quantities of sugar, butter or margarine and eggs for a Victoria sandwich cake.
- (b)(i) The method of making and baking a cake by the creaming method was usually described well and appropriate reasons for following the method were noted. Full marks were often scored. Credit was given for all correct points from setting the oven and preparing the tins to testing the cake and cooling it. Candidates were not required to give information on the decoration and serving of the cake.

- (ii) The question asked for the names of two other items which could be made using the same mixture. No marks could be given for suggested flavourings for a sandwich cake. Appropriate uses were for steamed pudding, queen cakes, butterfly cake, Bakewell tart, pineapple upside pudding and fruit cake. All appropriate suggestions were credited.
- (d) The raising agents in a Victoria sandwich cake are air, carbon dioxide and steam. Full marks could only be scored in this section if at least two of these were mentioned. It was usually stated that gases expand on heating pushing up the mixture. Some candidates correctly stated that the protein in egg will coagulate and set the shape of the cake. The dextrinisation of starch and the caramelisation or sugar cause browning. It was correctly noted in several answers that carbon dioxide is produced by the action of moist heat on baking powder. The range of facts which were credited was very wide. It was pleasing that many candidates were able to demonstrate their understanding of the process.

Question 5

- (a) Candidates were usually able to describe the preparation of green vegetables using methods which would conserve vitamin C. They advised that the vegetables should be washed before cutting, should not be sliced very thinly, should be cooked in a small amount of boiling water for a short time with a lid on the pan. They must be served immediately. Although many candidates advised that vegetables should not be soaked for very long, no marks could be awarded. Green vegetables must not be soaked at all. Reasons for following the method described were not usually known. A simple statement such as, 'to conserve vitamin C', is inadequate and could not be given a mark. Vitamin C is water soluble, it is destroyed by heat and by oxidation, the enzyme ascorbase released from the cell walls when they are cut will destroy it and, being acidic, vitamin C will be neutralised by bicarbonate of soda which is alkaline so this must not be used during cooking. These explanations should have been used where appropriate to explain the method.
- (b) This question was concerned with achieving good results when deep frying. Many candidates interpreted the question incorrectly and focused their answer on safety when deep frying. Good answers noted that the fat should be hot enough before food is added; too high a temperature will burn the outside before the inside is cooked and too a low a temperature will cause the food to absorb fat. The need for coating was usually mentioned and the reasons for coating were well known. Some candidates correctly mentioned that the fat must be deep enough to cover the food because in deep frying the food is not turned during cooking. The need to absorb excess fat on absorbent paper was mentioned. There were other possible answers but credit was only given to those relating to the achievement of good results.
- (c) The method of making a roux sauce was often described well. Reasons for the method were less well known. It was surprising, for example, that few candidates could give a reason for stirring the sauce at each stage. Full marks were only available to those who were able to give some reasons since these were requested in the question.

Question 6

- (a) The majority of candidates were unable to define the methods of heat transfer.
- (i) A good answer would have been that in conduction, heat is transferred through solids. Heat causes molecules to vibrate; heat is passed from one molecule to another by contact. This occurs when a pan is heated on a solid hotplate.
- (ii) In convection, heat is transferred through liquids and gases. Many descriptions of convection currents were included; sometimes the information was given by means of a diagram. The examples usually given were heating an oven and boiling a pan of water.
- (iii) Radiation was known to be the method of heat transfer in grilling and toasting, but little else was known about it. It was hoped that radiation would be known to be energy in the form of rays which pass from hot objects, through space, in straight lines. The heat is absorbed by food placed in the path of the rays. There is no direct contact between the heat and the food.
- (b) Knowledge of the way food heats in a microwave oven was limited. Many candidates were unable to score any marks. A good answer would note that a magnetron produces electro-magnetic waves which are distributed evenly by a fan or a stirrer. Microwaves move at a high frequency and when they are absorbed by an object the molecules of water in that object vibrate. The friction generates heat which is passed to the rest of the food by conduction. A brief summary of this information would have ensured a good mark for this section.

- (c) Candidates were usually able to give a range of the advantages and disadvantages of using a microwave oven. The most frequently stated advantages were that food cooks quickly so fuel is saved, the food can be cooked and served in the same dish so there will be less washing up, and because the oven does not get hot the kitchen stays cool. Most candidates noted that a microwave oven can be used for defrosting. It was correct to mention that vegetables retain their colour and their vitamin B and C.

Some of the disadvantages stated were that because it is easy to overcook food, careful timing is needed. Foods do not become crisp and may not develop a characteristic brown colour or flavour. Most candidates warned that metal dishes must not be used and that it may be necessary to buy dishes especially for use in the microwave oven.

Question 7

- (a) There were many very good accounts of the different uses of eggs in food preparation. Credit was given for examples to illustrate the uses mentioned. The most frequently given uses were as a main meal, and for enriching, emulsifying, binding, glazing, thickening and setting. Better candidates explained that thickening and setting occur because of the coagulation of protein and that lecithin in egg yolk is an emulsifying agent which allows water and oil to combine without separating. Credit was given for any relevant information.
- (b) It was expected that methods of tenderising tough meat before cooking as well as methods of cooking which tenderise tough meat would be discussed. Most candidates gave a little information but answers tended to be too brief. Hanging meat to allow enzymes to partially break down protein could have been mentioned. Beating or cutting the meat into small pieces were usually suggested as was marinating. Wine, lemon juice and vinegar are all suitable for this purpose and marks were scored for mentioning them. Some candidates correctly named papain and bromalin as being suitable for tenderising tough meat. Moist methods of cooking meat, for example stewing, braising and pressure cooking, were credited. A few candidates explained that when meat is cooked by a moist method insoluble collagen is converted to soluble gelatine allowing the muscle fibres to fall apart.
- (c) Many candidates seemed to be unclear about the difference between herbs and spices and used the terms interchangeably. Herbs such as parsley, thyme, sage and rosemary are the leaves of plants. Spices can be obtained from roots, stems, flowers, seeds or bark. Common examples of spices are cinnamon, ginger, mustard, nutmeg and turmeric. It was usually stated that they are used to add colour, flavour and aroma to dishes and that they can stimulate the flow of digestive juices. Credit was given to examples of the use of named herbs and spices in dishes. Suitable examples could have been mint in sauce to serve with roast lamb, parsley to garnish fried fish, ginger in cakes and cinnamon in biscuits. Vague suggestions that spices can be used in cakes could gain no mark. It was important that all information was precise.

Paper 6065/02

Practical

General comments

On the whole candidates were able to understand the questions allotted to them and chose dishes that comply with the requirements of the tests. Most of them were able to prepare balanced meals. However, some of the chosen dishes were lacking skill and variety.

Most of the Centres were well-prepared. Candidates were mostly well-attired. Most of the candidates were able to work methodically but they lacked skill and were slow in their work. However, a few of them kept referring to the time plan and recipes. They were poor in judging the consistencies of sauces, gravies and jellies. However, there were also a number of excellent candidates.

The majority of the candidates were able to use labour and time saving appliances confidently. In some Centres, candidates were unsure of their work and using wrong utensils. Progressive washing was done. Table-settings were quite well done with good presentation of dishes with the exception of a few candidates who did not garnish some of the dishes.

Comments on specific questions

Question 1

- (a) A few candidates failed to prepare dishes using 'fresh milk'. The concept of milk was generally understood. However, it would make it easier if the words 'cow's milk' was used. A few candidates used santan (coconut milk) instead.
- (b) This was well-done and meals were balanced.

Question 2

- (a) Some candidates were confused with the term 'two different pulses'. They prepared dishes using two different legumes instead. Pulses were difficult because of the cooking time. Most schools do not use pressure cookers, so cooking time for pre-soaked pulses was quite long.
- (b) There was some confusion about which dish to bring down to **(b)**.

Question 6

- (a) This was well-done and the choices were mostly correct.
- (b) A few did not prepare a balanced meal and they were lacking a vegetable dish.

Question 7

This was very well-done. Most candidates had a correct choice with skillful dishes. Dishes were well-presented.

Question 8

- (a) Many candidates chose correct dishes and prepared balanced meals.
- (b) This was mostly well-done.