

# FOOD AND NUTRITION

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## GCE Ordinary Level

Paper 6065/01

Written

### General comments

Candidates seem to have had sufficient time to answer the required number of questions. There were few rubric errors.

The presentation of the scripts was generally good. There were, however, some candidates who did not leave a space between the end of one question and the beginning of the next. It is not necessary to begin each question on a new page but it is important that a line is ruled across the page at the end of each question. In some cases, the questions were not clearly numbered. More frequently, the parts of the questions were not clearly marked. It was pleasing to note that the majority of candidates indicated on the front cover the **Section B** questions they had answered. Although candidates are instructed to do so in the printed information on the front cover of the question paper, several did not follow the instruction.

The use of correction fluid is not necessary; a neat line through work to be ignored by the Examiner is sufficient. Time was wasted by covering incorrect work with correction fluid.

It would be helpful if answer sheets were fastened together loosely. Some sheets were so tightly tied with string that it was impossible to turn pages without tearing the paper. When this happens there is a chance that pages could become detached.

Many candidates failed to read the questions carefully, which resulted in long, detailed answers which were not relevant to the question. Candidates should be encouraged to take careful note of the mark allocations for questions and parts of questions. These are an indication of the amount of time to be spent on each part of the question and the amount of detail required in the answers.

Many candidates produced answers which showed that facts had been thoroughly learnt. The reproduction of facts was not, however, enough to gain the highest marks. Explanations and reasons were usually required in support of facts. The highest marks were achieved by those candidates who could apply information to particular situations. An inability to apply knowledge suggested that facts were learnt and not understood. Candidates who were unable to select appropriate information tended to write at length on a topic. This was not a good use of time.

### Comments on specific questions

#### **Section A**

#### **Question 1**

- (a)(i) Most candidates were able to state that Low Biological Value proteins lack one or more of the essential amino acids.
- (ii) Full marks were usually gained. Examples given included peas, beans, lentils and nuts. Cereals were not credited since they were given in the question.
- (iii) Functions of protein were well known. Many candidates scored full marks.

- (iv) Responses to this part of the question were disappointing. It was hoped that candidates would be able to state that the bran layer is made up of dietary fibre (NSP) and that it absorbs water, adds bulk and softens waste, making it easier to eliminate. Credit was given to those who mentioned names of problems associated with a lack of NSP in the diet. It was often correctly stated that NSP can reduce the feeling of hunger because it is filling.
- (v) Both calcium and iron were acceptable examples of minerals found in wholegrain cereals. The importance of each was well known, and good accounts were given by a large number of candidates. The majority could state that vitamin D aids the absorption of calcium, and vitamin C aids the absorption of iron. Rickets, osteomalacia and osteoporosis were all accepted as deficiency diseases resulting from a lack of calcium, and anaemia was the deficiency disease correctly noted for a lack of iron.
- (vi) It was disappointing to note that many candidates were not able to gain marks in this section. Full marks would have been gained by those who could state that pepsin in the stomach changes proteins to peptides, in the presence of hydrochloric acid. Those who noted that rennin clots milk were also credited with full marks. The action of only one of the enzymes was required. Those who were able to note that in the duodenum, trypsin, from pancreatic juice, changes proteins to peptides and that in the ileum, erepsin from intestinal juice converts peptides to amino acids gained maximum marks.
- (vii)
  1. It was hoped that candidates would state simply that amino acids are absorbed by the blood capillaries in the villi.
  2. Most candidates could not give sufficient information to score full marks for their understanding of 'deamination'. It was expected that it would be stated that nitrogen is removed from amino acids and is excreted as urea in urine. The remainder would be used as energy or stored as fat.
- (b)(i) Most candidates were able to give a variety of reasons why the body needs water. However, the question asked for explanations. Full marks were achieved for information such as stating that water is needed for digestion because the process takes place in solution, or that water is needed to regulate body temperature because water is lost in perspiration. To state that water is needed for perspiration and for digestion is correct but would not score full marks because explanations are omitted.
- (ii) Most answers gained full marks; drinks, soups, sauces, fruit and vegetables were the usual ways given.
- (iii) It was well known that an inadequate supply of water results in dehydration and that death can occur. Better answers noted that dehydration can cause headaches and fatigue and that sometimes digestive upsets occur.
- (c)(i) The majority of candidates could give two or three health problems associated with too high an intake of sugar. Tooth decay, weight gain, an increased risk of coronary heart disease and an increased risk of diabetes were the usual answers. Better answers gave explanations such as that excess glucose in the blood is linked with diabetes.
- (ii) There were many excellent suggestions of ways to reduce sugar intake. Most candidates listed using artificial sweetener and drinking beverages without added sugar. Eating fewer biscuits and cakes, and avoiding sugar-coated breakfast cereals were also frequent answers. Many candidates gained full marks.

## Question 2

- (a) The nutrients in fish were well known, and many answers gained full marks.
- (b) Full marks were often gained in this section. When buying fish, candidates correctly stated that eyes should be bright and prominent, flesh should be firm and there should be plenty of firmly attached scales. Gills should be bright red and there should be no unpleasant smell. Maximum marks could be scored without stating every one of these points.

- (c)(i)** Boning and filleting of fish were not asked for. It was expected that candidates would suggest scraping off scales, removing head and gills, slitting along the abdomen and removing internal organs. Finally the fish would be washed. Sadly, many answers were too brief, noting only that fish should be washed.
- (ii)** There were disappointing accounts of the preparation of fish for freezing; most answers were restricted to washing the fish and putting it in a plastic bag. It was expected that the removal of air from the bag, followed by sealing and labelling would have been mentioned.
- (d)(i)** Many candidates correctly stated that storing fish in a freezer prevents the multiplication of bacteria. The temperature of the freezer,  $-18^{\circ}\text{C}$  for storage, was rarely mentioned. Those candidates who noted that when water is frozen it is not available for bacterial growth gained marks.
- (ii)** The most common methods of preservation of fish were canning and drying, although salting, pickling and smoking were acceptable. It was expected that candidates would be able to state, for example, that during canning, bacteria are destroyed by heat, then the can is sealed to prevent the entry of further bacteria. Similar detailed information could have been given to explain other methods of preservation.

### Question 3

This was a very popular question and some high scores were achieved.

- (a)** There were many good lists of reasons for serving sauce. Examples were generally correctly given. The range was wide and included: adding variety of flavour, colour and texture, adding nutrients, counteracting the richness of a particular food and for binding ingredients together. Examples were appropriate.
- (b)(i)** Descriptions of making a roux sauce ranged from excellent to very poor. Those candidates who were able to work through the method stage by stage tended to score full marks. Poorer candidates could often state only that the sauce thickens.
- (ii)** Most candidates were able to gain full marks for suggesting ways of varying the flavour. The addition of cheese, onions, parsley, sugar and brandy were popular.
- (c)(i)** The most popular answer given to explain why a wooden spoon is used was that wood is a poor conductor of heat so the spoon will not get hot. Some correctly stated that a wooden spoon is more efficient; it is easier to mix the sauce thoroughly. Another reason was that wood will not scratch the pan.
- (ii)** Full marks were gained by the majority of candidates. They were able to state that sauce will become lumpy if milk is added too quickly, if milk is added while the sauce is being heated and if the sauce is not stirred well at every stage.
- (d)** Better candidates gave excellent accounts of the changes taking place during the cooking of a roux sauce. They correctly noted that fat melts and is absorbed by the starch grains. Water is then absorbed by the starch, causing the starch grains to swell. Some of the granules burst and gelatinisation occurs, causing the sauce to thicken.

### Question 4

- (a)** Candidates were able to list points to consider when planning meals but did not always give further information. It was hoped that examples would have been given to illustrate points. It could have been stated that the climate had to be considered. The point would be developed by noting that hot meals would be appropriate in cold weather. Many other examples were correctly given, for example time available, money available, the skill of the cook, the colour, flavour and texture of the dishes and so on. Full marks would only have been gained if an example or additional information had been given to support the point.

- (b)(i)** Many candidates were able to gain full marks for this part of the question. Most stated that additional protein would be required because teenage girls were growing, iron would be required to replace the iron lost during menstruation and vitamin C would be needed to aid in the absorption of iron. Calcium and starch were equally acceptable.
- (ii)** It was well known that manual workers were likely to need more starch for the extra energy requirement and that fat would provide a more concentrated source of energy. Some noted that thiamine would be needed to help release energy from carbohydrates; others mentioned the need for additional sodium or protein.
- (c)** Candidates were very competent at listing ways in which vitamin C could be lost when preparing, cooking and serving green vegetables. They were less able to explain why the loss would occur. It was expected that they would be able to state, for example, that green vegetables should not be soaked because vitamin C is water soluble. To qualify other pieces of advice, it was expected that candidates would state that vitamin C is destroyed by heat, by oxidation, by the enzyme released from cell walls when the vegetable is cut and that vitamin C, being acidic, is neutralised by bicarbonate of soda, which is alkaline.

### Question 5

This question was popular and was well answered by the majority of candidates.

- (a)** Many methods of incorporating air into mixtures were known and good examples were given to illustrate each method. Most candidates could state that air expands on heating. Better answers described how the risen shape would be set when protein, such as from egg in the mixture, coagulates on heating.
- (b)** Although most answers were good, some candidates described at length how to carry out the frying process. The question clearly related to safety when frying. Credit was given for information relating to the amount of oil in the pan, the need to avoid contact with water and the avoidance of overheating. There were many other valid points and reasons were well known.
- (c)** Some answers on the different uses of sugar were disappointing. All candidates were able to mention sweetening and usually the ability to trap air when creamed with fat or whisked with sugar. Few, however, noted the use of sugar as food for yeast or for preserving. There were many possible uses, including the preparation of icing and confectionery and for glazing. In most cases, appropriate examples were given to illustrate the uses mentioned.

### Question 6

- (a)(i)** Most candidates correctly stated that food spoilage is caused by the action of yeasts, moulds, bacteria and enzymes. Those who mentioned the oxidation of fat causing rancidity and loss of water from vegetables causing shrivelling were also given credit.
- (ii)** Few candidates were able to give a range of conditions which favour bacterial growth. Moisture, warmth, food, time, oxygen and appropriate pH were all acceptable.
- (b)** The term 'cross-contamination' was not well defined. Full marks would have been scored by a candidate who stated that it meant the spread of bacteria from raw foods to cooked foods during food handling or storage.
- (c)** Advice on the storage and re-heating of cooked chicken was limited to placing in the refrigerator or keeping cool. It was hoped that emphasis would have been given to the container being clean and covered. Very few candidates appeared to know that, when re-heating food, the temperature must reach 70°C in the centre and should remain at this temperature for two minutes. It was not enough to state that the food should be warmed up 'until hot'. Many correctly noted that foods should not be reheated more than once.
- (d)** There were many very good accounts of how high standards of kitchen hygiene could be maintained. Surfaces, equipment, and waste disposal were usually discussed, as were points about the care of kitchen cloths. A large number of answers did, however, include details on personal hygiene, shopping and the storage, preparation and cooking of food. These were not required.

## Question 7

This was a very popular question and was well answered.

- (a) The process of rubbing in was usually described precisely, indicating sound practical knowledge of the process. The example given was often shortcrust pastry, although credit was given for naming a dish using shortcrust pastry such as quiche.
- (b) Creaming was also described well. Good examples were given and full marks were scored.
- (c) It was expected that candidates would recognise rolling and folding as being involved in the making of flaky pastry or rough puff pastry. Those who described one of those methods gave good accounts. A few candidates, sadly, described rolling and folding as two separate processes and gained no marks.
- (d) Good examples of ingredients used for coating were given but candidates seemed less sure of the reasons for coating, although most noted that the process preceded frying. Those who described coating using a sauce were given credit.
- (e) The kneading action was often described well and correct examples were usually given. It was surprising to note that a large number of candidates believed that air was incorporated during kneading.