



## General Certificate of Secondary Education

# Home Economics: Food & Nutrition 3562/H Higher Tier

## Mark Scheme

*2005 examination - June series*

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available to download from the AQA Website: [www.aqa.org.uk](http://www.aqa.org.uk)

Copyright © 2005 AQA and its licensors. All rights reserved.

#### COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

# Contents

## GCSE Home Economics: Food and Nutrition

Higher Tier ..... 5

## Home Economics: Food and Nutrition Higher Tier

3563/H

### Question 1

- (a) Chicken contains more calories/higher energy value than Quorn.  
 Chicken contains nearly twice as much protein.  
 Fat content of Quorn is lower than tofu but higher than chicken.  
 Chicken contains no carbohydrate whereas Quorn contains a small amount.  
 Chicken provides no dietary fibre; Quorn provides a useful amount.  
 No cholesterol in Quorn but 90mg in chicken. *(6 marks)*
- (b) Tofu is a Soya bean curd. (accept soya) *(1 mark)*
- (c) Repair  
 Growth  
 Energy  
 Maintenance *(2marks)*
- (d) HBV- Complete proteins.  
 Contain **all** the IAAs in sufficient quantity.  
 More easily absorbed and used by the body.  
 Found mainly in animal foods / meat, fish, cheese, eggs and milk. *(2 marks)*
- LBV- Incomplete proteins lack one or more IAAs.  
 Incomplete proteins.  
 Found mainly in plant foods/ peas, beans, lentils, nuts. *(2 marks)*
- Protein Complementation-  
 Combination of LBV foods eaten together to provide a sufficient supply of IAAs e.g. beans on toast. *(2 marks)*

**Total 15 marks**

### Question 2

- (a) 2-3 litres / 6-8 glasses/4-6 pints *(1 mark)*
- (b) Fruits e.g. melon, citrus fruits, vegetables, soups, gravy, custard. *(3 marks)*
- (c) 70 % human body is water.  
 Required for all body fluids- digestive juices, blood, sweat, urine etc. Accept these as individual answers i.e.: 1 mark available for each.  
 Helps absorption of certain nutrients.  
 Lubricates joints and membranes. *(4 marks)*  
**Any 4 relevant answers**

**Total 8 marks**

### Question 3

- (a) (i) Sugar  
 Dextrose

- Glucose syrup  
 Honey  
 Molasses  
 Lactose  
 Invert sugar syrup  
**Any five.** Answers must be accurate and in full. (5 marks)
- (ii) Flavouring  
 Emulsifier  
 Colour  
 Stabiliser (4 marks)
- (b) To preserve them from decay and spoilage.  
 To improve their keeping qualities.  
 To improve or enhance the flavour.  
 To improve or enhance the colour.  
 To improve or enhance the texture.  
 To produce a uniform food during large scale manufacture.  
 To provide easy to prepare convenience foods.  
 To produce new food products.  
**Any 4** (4 marks)
- (c) To restore flavour lost in processing.  
 To intensify the flavour of the food. (1 mark)
- (d) (i) Use-by: Used for highly perishable foods / food which could be dangerous to human health / foods that deteriorate quickly.  
 Best-before: For products with a long shelf life of 3 months or more. Non perishable foods.  
**OWTTE** (2 marks)
- (ii) Best before. (1 mark)
- Total 17 marks**

**Question 4**

- (a) A- Retinol  
 D- Choleocalciferol  
 Accept E and K (2 marks)
- (b) C- Ascorbic Acid  
 B group (2 marks)

(c)

Vitamin	Use by the body	Good sources
A- Retinol	Night Vision. Healthy skin and tissue. Protection against cancer. Affects growth. Mucous membrane.	Liver, oily fish, whole milk, butter, margarine, cheese, eggs.
B1- Thiamine	Helps release of energy from nutrients.	Fortified breakfast cereals, meat, liver, milk, eggs, bread, vegetables including potatoes.
C- Ascorbic Acid	Maintains body's connective tissue. Maintenance of skin. Building strong bones & teeth Wound healing. Iron absorption. Anti-oxidant.	Citrus fruits, - only accept one citrus fruit, blackcurrants, kiwi fruit, potatoes.

**Simple responses only award a maximum of 5 marks**  
**Do not award too many examples of food sources.**

*(9 marks)*

- (d) A and D *(2 marks)*
- (e) Contains too much vitamin A, can harm new born baby, can lead to damage and defects in unborn baby.  
**OWTTE** *(2 marks)*
- (f) Vegans *(1 mark)*

**Total 18 marks**

### Question 5

- (a) Less leisure time being spent on food preparation.  
 More women going out to work.  
 Increases in food technology.  
 Increased freezer and microwave ownership.  
 Influence of advertising.  
 Loss of cookery skills.  
 Saves washing up.  
 Less preparation, quick and easy  
 Wide choice available.  
 Low fat/healthy eating ranges available.  
 Easy to store.  
 More single people/elderly/one portion meals *(4 marks)*

- (b) May be more expensive than fresh foods - difficult for people on a low budget.  
May be low in dietary fibre - constipation.  
Servings may be small - not very filling.  
Nutrients may be lost in processing - health issues.  
May be too high in fat or sugar - obesity.  
High in salt - HBP.  
Additives - allergies / hyperactivity.  
Packaging - waste disposal.  
De-skilling - no need to cook anymore.

**Points raised must be discussed.**

- 1-2** Simple understanding, list of disadvantages only. No discussion of points raised. Little or no use of appropriate terminology and basic communication skills.
- 3-4** General understanding. Range of disadvantages with some discussion of points raised. Some use of relevant and appropriate terminology and satisfactory communication skills.
- 5-6** Good range of disadvantages raised with discussion of each. Good use of terminology and good communication skills. *(6 marks)*

- (c) (i) Look for a variety of fresh and convenience foods. Look for: Colour, nutritious, fresh, convenience. If candidates give more than one meal, mark the best example.

**1-2** Simple menu. May include too many convenience foods. Show little understanding of how to combine fresh and convenience foods. Basic communication skills.

**3-4** Answer shows a general understanding of how fresh and convenience foods can be combined to show variety of taste, texture, colour and nutritive value. Satisfactory communication skills.

**5-6** A clear understanding is shown of how fresh and convenience foods can be combined to produce colourful, tasty and nutritional well balanced meals. Good communication skills. *(6 marks)*

- (ii) Candidates should show they have included a range of nutrients: protein; fat; carbohydrate; minerals, need to specify which ones; vitamins, need to specify which ones; fibre.

**Reward any accurate reference to a nutrient.** *(6 marks)*

- (d) Choose foods in season.  
Look out for cheap cuts of meat.  
Special offers.

Make a shopping list.  
Cheap supermarkets / markets.  
Make your own foods / less ready meals.  
Choose cheap starchy foods.  
Look for reduced items at the end of the day / date code.  
Value lines.  
Eat more pulses.  
Shop around.

*(4 marks)*

**Total 26 marks**

**Question 6**

- (a) Essential fatty acids.  
Concentrated source of energy.  
Protection of vital organs.  
Insulating layer under skin.  
Source of fat soluble vitamins.  
Texture and flavour / palatability of food.  
Satiety  
**Any 3** *(3 marks)*
- (b) 9 kcals (38 KJ) *(1 mark)*
- (c) Oily fish contains EFAs called omega 6 and omega 3.  
Omega 3 EFAs may help lower the blood cholesterol and help prevent blood clots.  
Unsaturated fatty acids *(2 marks)*
- (d) (i) Saturated fats:  
All the carbon atoms are saturated with hydrogen atoms.  
These fats are usually solid at room temperature.  
Usually found in animal fats.  
  
Polyunsaturated fatty acids:  
Fatty acids have more than one double bond I the molecule.  
Found mainly in vegetable oils. *(6 marks)*
- (ii) Dairy foods including milk, butter, coconut oil, beef fat.  
Hard/block margarine, egg yolk, lard.  
**Any 2** *(2 marks)*
- (iii) Fish oils.  
Polyunsaturated margarine.  
Vegetables oils.  
Seed oils.  
Nuts.  
Avocados.  
Oily fish.  
Accept 2 named oils.  
**Any 2** *(2 marks)*



- (e) In the small intestine / duodenum. 1  
 Bile 1 emulsifies fats to disperse them in the liquid in small droplets. 1  
 Pancreatic lipase. 1  
 Breaks fat into glycerol 1 and fatty acids. 1

(6 marks)

**Total 22 marks**

**Question 7**

- (a) In descending order by weight. (1 mark)
- (b) (i) Sale of Goods Act- Goods must be of merchantable quality / fit for their purpose. Consumers are entitled to a refund or compensation if not, or an exchange. (2 marks)
- (ii) Food Safety Act- Covers production, processing, storage, distribution and retail. Food must meet food safety requirements. Food must be as described. Customers must not be misled. (2 marks)
- (iii) Weights and Measures Act- Controls weighing and measuring equipment. Requires quantities of goods to be displayed on packets. (2 marks)
- (c) Advertising Standards Authority. (1 mark)
- (d) Government department to protect consumers. To stop unfair methods of trading. To produce information (leaflets, films) on shopping rights and the law. **OWTTE.** Any 2 valid points. (2 marks)

**Total 10 marks**

**Question 8**

Broccoli:  
 Water-soluble vitamins, C and B group are destroyed by cooking and will leach out into cooking water.  
 Colour changes. Chlorophyll becomes bright green when the vegetables are first cooked. If over cooked it changes to olive green / brown.  
 Dietary fibre becomes softer when heated with liquid / texture becomes softer.

**Minced beef:**

Bacteria e.g. salmonella, campylobacter are destroyed by heat making meat safe to eat.

Cooking makes the meat more tender.

Cooking improves the flavour.

Red colour changes to brown.

Protein value not lost unless the food is burnt.

Heat makes protein molecules change their structure and the meat may shrink.

Oxymyoglobin in uncooked meat makes it red. During cooking changes to haemochrome, which is brown.

Fat melts.

**Spaghetti:**

Contains tiny granules of starch. Water passes through the starch granules and the granules become swollen and may burst releasing starch.

Gelatinisation.

Dried pasta absorbs water through osmosis causing cells inside to swell and the pasta becomes larger in size.

Becomes softer.

Nutritional value not altered.

**Eggs:**

Protein molecules start to coagulate (become firmer).

Egg white coagulates at 60°C when protein denatures into a solid sold and opaque. Egg yolk starts to denature at 70°C, becomes dry and hard.

Some loss of B vitamins on exposure to heat.

**Criteria for award of marks.**

- 0-5** Answers may be muddles and information superficial. A limited number of points will have been made and candidates will only have basic understanding of the effects of heat on foods. Answers may concentrate mainly on one area e.g. colour or texture. Little or no use of appropriate terminology and only basic communication skills.
- 6-10** Answers will be fairly well organised and clearly presented. A good range of points will be given which will show a good understanding of various effects of cooking on each foodstuff. There will be some use of relevant and appropriate terminology and satisfactory communication skills.
- 11-15** Answers will be well organised and clearly presented. A good range of points referring to colour, taste, texture and nutritive value.

Reference will have been made to at least two-  
three effects of heat on each food.  
There will be good use of terminology and good  
communication skills.

*(15 marks)*

**Total 15 marks**

**Total for paper: 132 marks**